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VOL III

A N
H I S T O R Y
O F
F U N G U S S E S,

G R O W I N G A B O U T
H A L I F A X.

W I T H
F O R T Y - S I X C O P P E R - P L A T E S ;
O N W H I C H A R E E N G R A V E D
S I X T Y - F O U R S P E C I E S o f F U N G U S S E S,

Including the Seven following GENERA, viz.

CLATHRUS,
HALVELLA,
PEZIZA,
CLAVARIA,

LYCOPERDON,
SPHÆRIA,
AND
MUCOR.

Wherein their various Appearances in the different Stages of Growth, are faithfully exhibited in about

T H R E E H U N D R E D F I G U R E S,

Copied with great Care from the PLANTS, when newly gathered and in a State of Perfection.

With a particular DESCRIPTION of each SPECIES, in all its Stages,

From the first Appearance to the utter Decay of the Plant; with the Time when they were gathered; the Soil
and Situation in which they grow; their Duration; and the particular Places
mentioned, where all the New or Rare Species were found.

The Whole being a plain Recital of FACTS, the Result of more than Twenty Years Observation.

I N T H R E E V O L U M E S.

By J A M E S B O L T O N,

Member of the Nat. Hist. Society, at EDINBURGH,

V O L. I I I.

N A T U R A S E M P E R E A D E M

H U D D E R S F I E L D :

P R I N T E D B Y J. B R O O K, F O R T H E A U T H O R, A T S T A N N A R Y, N E A R H A L I F A X.

M, DCC, LXXXIX.

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I N T R O D U C T I O N

C O N T I N U E D.

SINCE the publication of the First Part of this Introduction, I find that the plant there mentioned under the name of *Halvella inflata*, is figured by SCHÆFFER, and named *Helvella Clavaria*; it is figured in his work, plate 249. The figures seem to have been taken from dried specimens.

It is also figured in the *Flora Danica*, t. 648. This figure was taken from a fresh plant, but the inflation of the pileus is not clearly exhibited: He has well expressed the ejection of the seeds from its surface, in a section or two at the bottom of the plate.

The plant which I have named *Boletus rengiferinus*, and figured on my 138 plate, I take to be the same, under a different appearance, which is figured in the *Flora Danica*, t. 405, and is supposed by the author to be the *Fucus digitatus alveriorum* of LOESELL; but his figure seems to have been taken, when the plant was in a state less mature than the specimen from which I took mine.

My *Sphaeria agariciformia* is also figured in the *Flora Danica*, and is thus described: "*Fungus difficulior ad ullum notorum generum referendus, stipite ex albo livefcente suberoso sesquipolicari, pileo glandis farina fusca cute subcarnea papillofa poris cellulorum carnis, mucellagine seu gelatina reptetorum.*" It is figured on plate 540, but the plant was small, and its very singular root not at all attended to. In the specimens which I have seen of this rare plant, the *Pilei* have frequently been twin, or double on the same stem.

The curious Phænomenon of Elasticity, in the seed-bearing filaments in many plants of this order, as well as of the *Filices*, is truly worthy of admiration; it is visible to the naked eye in many of the larger species, and by the use of glasses, in the most minute.—Mr. EDWARD ROBSON, an ingenious Botanist, of *Darlington*, in the bishopric of *Durham*, has lately communicated to me an observation, made by him, upon the Scarlet Clathrus, which may serve to illustrate this curious operation of Nature: what he has written I will transcribe in his own words.

" I have enclosed a specimen of a wonderful little plant. The stalk
 " is about a line in length, bearing at the top a round head, about the
 " size of a rape seed, at the first very tender, and contains a liquor like
 " milk; from that they turn to a beautiful orange colour, and after that
 " to an olive. When mature, and fit for examination, I looked at a
 " great many of them through the explacator; and some amongst them
 " were just opening at the top: One of these I laid on the talck in the
 " slider, and viewed it through the silver speculum. At the first I was
 " much surprised, to see a part of the fibres, that had got through the
 " rupture, moving like the legs of a fly when laid on its back. I then
 " burst it with the point of a pin, and was surprised still more, when I
 " saw it had the appearance of a little bundle of worms entangled toge-
 " ther, or fibres all alive. I next took the little bundle of fibres quite
 " out, and the animal motion was then so exceeding strong, as to turn
 " it half round, first one way and then another, and two or three times
 " it got out of the focus. Almost every fibre had a different motion;
 " some

“ some of them twined one round another, and then untwined again,
“ while others were bending, extending, coiling, waving, &c. The
“ fibres had many little balls adhering to their sides, which I take to be
“ the seeds: I observed many of these were disengaged at every motion
“ of the fibres. I distinguished many of the fibres, and they appeared
“ under the lens as thick as a horse hair, and were all exactly of the
“ same length, which was to my apprehension about two inches; they
“ were smallest at each end, which, together with their vermicular
“ motion, gave them the strongest resemblance of little live worms.—
“ I examined many of them, at various times, and always found the
“ motion precisely the same; but strongest when recent, and on the first
“ bursting. The seeds appeared like gunpowder finely granulated.”

The same Phænomenon obtains in all the Ferns; but most beautifully and manifestly in the first genus, the *Equiseti*. There are many other plants which eject their seeds, as the *Cardamine impatiens*, *Impatiens noli-metangere*, &c. &c. but in these the operation is performed by a differently constructed spring.

I have throughout this work been as cautious as possible in giving references to Authors; from a conviction, that false references cause the greatest confusion; they tend only to *distract*, not to *inform*: And whoever undertakes to trace them, in regard to the plants of this order, as they are given by the *Floristæ*, will feel the truth of what I here assert.

In many instances, where I found the plant under review agreeing, in several particulars, with the figure or description of some approved Author, and yet differing in any one essential mark or character, I have not chose to apply the name or *synonym* of that author, but rather to give a name of my own, though but a temporary one; which the future observations of me, or of my friends, may finally establish or reject. For the above reason I forbear, at present, the publication of an *Index Synonymorum* to the whole work; which, though but in an imperfect

fect state, has cost much time and application, and which will accompany this work, when the remaining part of the Appendix is completed. For there are yet many subjects in my possession, which I do not think fit yet to publish, because I have not seen them in all their different stages and appearances; but shall omit no opportunity of observing them, till I attain a more perfect investigation.

Agarics, Boletusses, and such other *Fungi* as grow on the ground, are to be sought for in soils consisting chiefly of vegetable mould, particularly in low, moist, and shady woods, in meadows and pasture grounds, under hedges, and about old wood yards.—In gravelly or clay soils, of whatever aspect or situation, few species are to be found; and I never saw them grow plentifully in *calcareous* soils.

The *parasitic Fungi* are to be found in low and moist situations, near brooks or rivulets, on pieces of broken trees in a state of decay. The species of woods on which the seeds of these plants more freely vegetate, are Hasle, Birch, Alder, Elder, Maple, Elm, Poplar, the various species of Sallow, Pear Tree, Cherry Tree, and Fruit Trees in general.—Descriptions, with accurate figures, of which, as well as all other British Trees, may be seen in *Evelyn's Sylva*, with notes and improvements, by Dr. HUNTER, M.D. F.R.S. printed in 4to, at York, 1776. A work which should be carefully perused by all those who deal in Timber, and by every Gentleman and Landholder, who has the Prosperity of his Plantations at heart.

In regard to the Authors who have written on Fungusses, and illustrated their works with figures, the first of any note, which I have seen, is FRANCIS VAN STERBECK, who in his *Theatrum Fungorum*, first printed at *Antwerp*, in 1654, in 4to. has on thirty-two plates given about three hundred figures, with descriptions in the Dutch language. His figures are pretty good, but in some the Generic Characters are not properly attended to by the engraver. I have an Original Painted Copy
of

of this work, in which those defects are supplied and corrected by the pencil; but this is a great rarity.

MERSILIUS, in a work entitled *De Generatione Fungorum*, printed at *Amsterdam*, in folio, 1714, has given twenty-seven indifferent plates; but his figures and dissertations, on the Generation of Fungusses, are not now useful.

MICHEL, in his *Nova Plantarum Genera*, printed at *Florence*, in folio, 1729, has enumerated about eight hundred species; and has given a great number of excellent figures, of every Genera of this order.

BATTARRA, in his *Fungorum Agris Ariminensis Historia*, printed at *Rimini*, in 4to. 1755, on forty plates, has given a great number of figures; all of which are well described, with proper notes and observations concerning them.

SEBASTIN VAILLANT, in his work entitled *Botanicon Parisense*, printed at *Amsterdam*, in folio, 1727, has amongst many other excellent figures, given about ninety very accurate ones of Fungusses.

SCHÆFFER, in a work entitled *Fungorum qui in Bavaria et in palatunatu circa Ratibonum nascuntur Icones*, published at *Ratibon*, in 4 vols. 4to. in 1780, has given three hundred and thirty large plates: Many of the subjects are represented in all their various appearances, and, by that means, one plant is often made the subject for several plates; so that the number of plates greatly exceeds that of the real species of plants figured by him. In this work the impressions are taken on both sides of the paper.

Monfieur

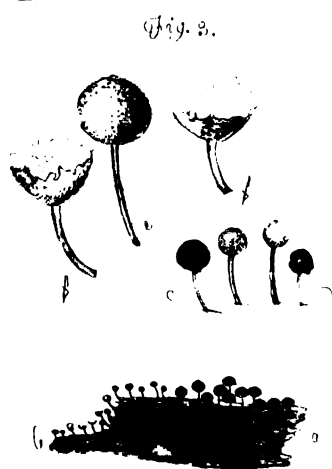
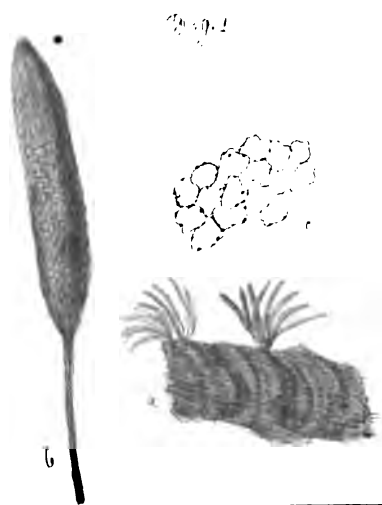
Monfieur BULLIARD, in a work now publishing in *Paris*, entitled *Champignon de la France*, has in a great number of very beautiful and elegant figures displayed, in a most fuperior manner, the *Fungi* of that kingdom.

In the works of JACQUIN,—in the *Flora Danica*,—and in the excellent work of our own countryman, Mr. WILLIAM CURTIS, entitled *Flora Londinensis*; now publishing in numbers, in folio,—are given, interfperfed with other plants, many accurate figures and descriptions of Fungusses: So that we may hope in time *to fay*, That this extenfive branch of Natural Hiftory, is no longer a Chaos, or a Shame to the Science of Botany.

It may not be improper here to remark, that in all the Copies of this Work which have been or will be fold, Coloured, the Plates are taken off on the beft Royal Paper, either Royal Writing, or what is called Wove or Vellum Paper; but in all Copies that have been or will be fold, Uncoloured, they are taken off on an inferior Paper, the fame with that of the Letter-Preffs.

Stannary, near Halifax,
December 12, 1789.

ERRATA.—Page 94. l. 30, add *.—P. 100, l. 8, erase a.—P. 102, l. 22, r. afterward becomes.



A N

HISTORY OF FUNGUSSES,

GROWING about HALIFAX.

G E N U S V.

C L A T H R U S.

* *stalked.*

CLATHRUS *stipitatus*, capitulo oblongo, axi longitudinali adnato. Sp. Pl. 1649. Mich. nov. Gen. p. 215, t. 94. Haller Hist. 2165.

CVII.
nudus.

N A K E D C L A T H R U S.

T A B. XCIII. F I G. I.

THIS consists of a black hair-like stem, a line in length, and a cylindric head, three lines in length; of a fulvous brown colour, and having the appearance of a soft and downy plume. The natural size is expressed at *a*. The magnified figure, at *b*, shews the network. A small particle of the network is highly magnified at *c*, to shew the situation of the seeds.—Grows in the hollows of old decaying stocks and roots of trees, in several places about *Halifax*, in September and October.

CLATHRUS *stipitatus*, capitulo oblongo volvato. Sp. Pl. 1649. Mich. nov. Gen. t. 94. fig. 1. Relban Flor. Suppl. 1, p. 30, No. 1046.

CVIII.
denudatus.

P U R P L E C L A T H R U S.

T A B. XCIII. F I G. II.

THIS consists of a globular head, the size of a mustard seed, of a brownish purple colour, supported on a filiform stem, scarce a line in length. The head is surrounded with a cover, which in due time breaks in the top, and gives way to the downy network, which then begins to extend in length, and to assume an oblong figure, the cover remaining like a volva at the base; after the discharge of the seeds, a black oblong axis remains for some time. The natural size of the plant is seen at *a. b.* magnified in two degrees at *c. c.* the smaller with its cover, the larger with its cover taken off before maturity. At *d. e.* magnified in different degrees, when in a state of perfect growth.—Found on moist putrid wood in damp places, in July and August.

CLATHRUS *stipitatus*, capitulo globofo coccineo, villo fusco. Hudson Angl. 631, 6. *Mucor perennis pallidus pileo fulvo.* Sp. Pl. 1655. Haller Hist. 2163, t. 48, fig. 4. Relban Append. alt. p. 28, No. 1099.

CIX.
fulvus.

S C A R L E T C L A T H R U S.

T A B. XCIII. F I G. III.

THIS consists of a globular head, at first of a beautiful bright vermilion colour, supported upon a white stalk, a line in length; as it grows older, the scarlet colour changes to a dark brown, afterwards the cover breaks, and the network appears of a dark fuscous colour. After the discharge of the seeds, the remainder of the plant abides for some time in form of a cup, rent and irregular on the edge. The natural size is expressed at *a. b.* magnified in various degrees, at *c. d. e. f.*

CX.
*flavus.*CLATHRUS *stipitatus*, capitulo globoso villo flavo. Hudson Angl. 631. Mucor perennis
stipiti filiformi nigro capitulo globoso cinereo. Sp. Pl. 1655. Hall. Hist. 2161. t. 48.
fig. 3.

YELLOW CLATHRUS.

T A B. XCIII. FIG. IV.

THE globular head in this is at first of a pure white colour, afterwards becomes of a brownish yellow, and when the cover breaks, it discovers a yellow coloured dawning net-work, replete with seeds; after the discharge whereof, a black globe remains, as at *a. b.* The plant is a little magnified at *c. d.*

This plant nearly resembles the last, and may possibly be only a variety of it.

CXI.
sphaeroc-
*ephalus.*CLATHRUS *stipitatus*, capitulo globoso cinereo. Relhan Flor. Cant. Append. 31, 1084.
Dil. Musc. t. 14, fig. 5. Hudson Angl. 631, 5. Hall. Hist. 2160, t. 48, fig. 2.

GREY CLATHRUS.

T A B. XCIV. FIG. I.

THE head in this is globular, and of a brown colour; it is the size of a large poppy seed, and is supported on a brown stem about twice its length. This species is distinguished from its congeners by an oblong, swollen, transparent base, as in the magnified figures, *a. b. c.* The brown cover breaks, as at *b.* and entirely vanishes, as at *c.* The seeds are expressed at *d.*—Grows in the chinks of old dry wood, &c. at all seasons.

CXII.
*olivaceus.*CLATHRUS *stipitatus*, stipite et capitulo villosa olivaceo.

OLIVE CLATHRUS.

T A B. XCIV. FIG. II.

THIS, like the first species, is naked, or without cover, the whole plant, both stem and head, being covered with an olive coloured down or shagginess, consisting of numerous divided and subdivided filaments, to which the seeds adhere. *a.* the natural size of the plant; *b.* a little magnified; *c.* the seeds.—Grows on putrid weeds, when thrown on heaps to rot for manure.

This plant makes the link which unites the *Clathrus* with the *Mucor*.

* *acaulis.*CXIII.
*turbinatus.*CLATHRUS *acaulis turbinatus* villo flavescente. Hudson Angl. 632, 8. Mich. Gen.
214, t. 94, fig. 2. Hall. Hist. 2168, t. 48, fig. 7.

TURBINATED CLATHRUS.

T A B. XCIV. FIG. III.

THIS is sessile, grows in numerous clusters, the size of a poppy seed, and of a dusky yellow. It is turban-shaped, adhering by a narrow base. The cover breaks near the top in various lacinae, and the network swells out of the rupture, for the discharge of the seeds. See the magnified figure.—Grows on putrid wood, in damp places about Halifax, plentifully.

This plant makes the link which connects the *Clathri* with the *Lycoperdi*.

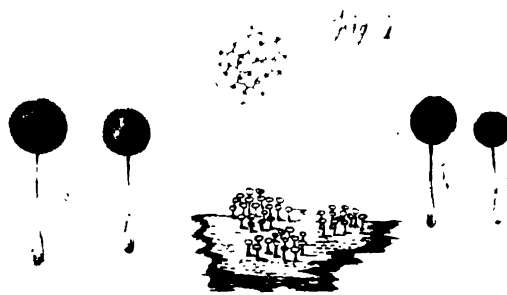


fig. 2.

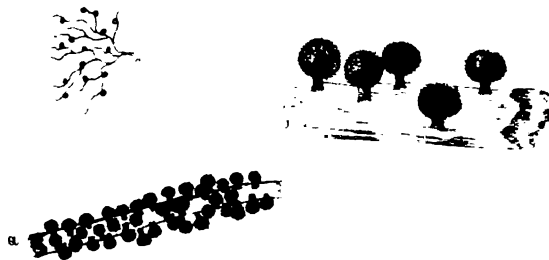
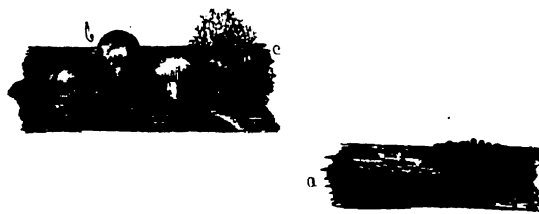


fig. 3.





Halvella mitra. 1786.

A N
HISTORY OF FUNGUSSES,
GROWING about HALIFAX.

G E N U S VI.
H E L V E L L A.

* *stipitatae*.

HELVELLA *stipitata*, pileo deflexo adnato lobato deformi. Sp. CXIV.
Pl. 1649. Schæf. Fung. t. 159, 160, 161, 162, 282, 320, mitra.
322. Hall. Hist. 2246. Mich. Gen. p. 204, t. 86, fig. 7,
8, 9. Ray Syn. 8. Relban Flor. 436, No. 959.

MITRED HELVELLA.

T A B. XCV.

THE root consists of a few fibres, adhering to the base of the stem.

The stem is four or five inches high, of a white colour, hollow within, and of an irregular surface; being much twisted, and sunk in furrows between swelling ridges; frequently gashed or rent in several places, particularly near the root.

The pileus or hat, when the plant is in its common state, is mitre-shaped, as in plate 95,—of a dusky kind of pale olive colour, the thickness of glove leather, of a brittle substance, and feels like velvet between the fingers:—It is, however, subject to vary greatly in shape and colour, as may be seen in SCHÆFFER'S *History of Fungusses*, in the plates above cited; where he figures many elegant varieties, which I have not observed to grow in this neighbourhood.

Grows in the shady parts of moist woods, and is a rare plant about *Halifax*,—except in the year 1777, when it abounded in many woods, hedges, &c. as is mentioned in the Introduction.

CXV. *HELVELLA stipitata, acetabulo extus sub aspero, plano aut
bispida. concavo. Schæf. Fung. t. 167. Hall, Hist. 2227. Aët.
Petrop. IV, 282, t. 29, fig. 3. Hudson Angl. 636, 9.*

HISPID HALVELLA.

T A B. XCVII.

THE root is hard and irregular, emitting a few white, hard, crooked fibres.

The stem is hard, solid, sometimes compressed or sulcated, larger toward the root, and of a dusky kind of pale mouse-colour; the height three or four inches. The colour, in most specimens which I examined, was darkest near the pileus; near the root, paler.

The pileus is hemispherical or salver-shaped, often a little waved round the margin, where a whitish ciliation is visible while the plant is fresh. On the under side of the pileus, as well as upon the stem, a kind of hairy granulation is perceptible, but the upper side is smooth. The size from one to two inches diameter; the substance rather brittle than otherwise, the thickness of fine cloth, which it resembles in the touch. It is a pale kind of mouse colour, turning darker in decay. When the plant is at maturity, on being gently struck, ejects its seeds in form of a fine smoke, with a visible elastic force.

It is a rare plant here, I have only seen it in two places. The specimens here figured, I gathered in a wood below *Highfield*, three miles from *Halifax*, September 27, 1787.

HUDSON places this plant amongst his *Pezizæ*, but the property of ejecting the seeds in form of smoke, which it visibly possesses, induces me to place it with the *Helvellæ*, as SCHÆFFER has also done.



Calvatia hemisphaerica.

J. Bolton Del.



HELVELLA *stipitata*, *stipite cylindrico albido, pileo venoso inflato*.—*Elvella clavata*. Schæff. Fung. 149. Dickson *Crypt. fasc.* 1. p. 19. XCVI.
seritoria.

BATTLEDOR HELVELLA.

T A B. XCVII.

THE root is an hard fibrous knob, of a blackish brown colour, and a little thicker than the bottom of the stem.

The stem while young is cylindrical, solid, soft, pliable, and of a silvery white; as it advances in age becomes a little wrinkled on the surface, twisted, and sometimes torn, especially near the root.

The pileus (if such it may be called) is in shape like the large end of a battledoor for striking a shuttlecock, and the stem resembles the handle. It consists at first of two equal membranes, of a pale lemon colour, united at their sides, plain, and united by their whole inner surface; or, in other words, it imitates a small bladder, with the two sides pressed together. As it advances in growth the two sides become wrinkled, and branching veins begin to originate from that part of the stem which runs into the pileus; at last the sides separate, and the pileus becomes inflated or puffed up; and when the bladder is opened, nothing is found in it, except a few dawny capillary filaments.

This is the *Helvella Inflata*, mentioned in my Introduction; but since, finding that SCHÆFFER has applied that name to a very different species, I have called it as above; SCHÆFFER has figured this plant on the plate above cited, but his figures were taken from dried specimens. The figures in MICHELIS and VAILLANT'S Works, which SCHÆFFER has cited for his plant, have no resemblance of mine.

The specimens which lay on the table by me, while I made this figure and description, on being touched, threw up their seeds in form of a smoke, which arose with an elastic force, and glittered in the sunshine like particles of silver.

Grows in the plantations about *Fixby-Hall*, in September and October.

CXVII. *HELVELLA stipitata, stipite cylindrico, pileo hemisphaerico*
agarici-
forma. albido.

AGARIC-SHAPED HELVELLA.

T A B. XCVIII. FIG. I.

THE whole plant is white. The stem filiform, half an inch in length. The pileus hemispherical, and about the diameter of a rape seed. They often grow in clusters; sometimes single. The plant is represented of its natural size at *a*. when magnified it appeared as at *b*.

Grows about the roots of trees, under the hypnum and other mosses, in the moist and shady parts of woods about *Halifax*.

CXVIII. *HELVELLA stipitata, stipite brevi, pileo umbellifero aurio.*
auria.

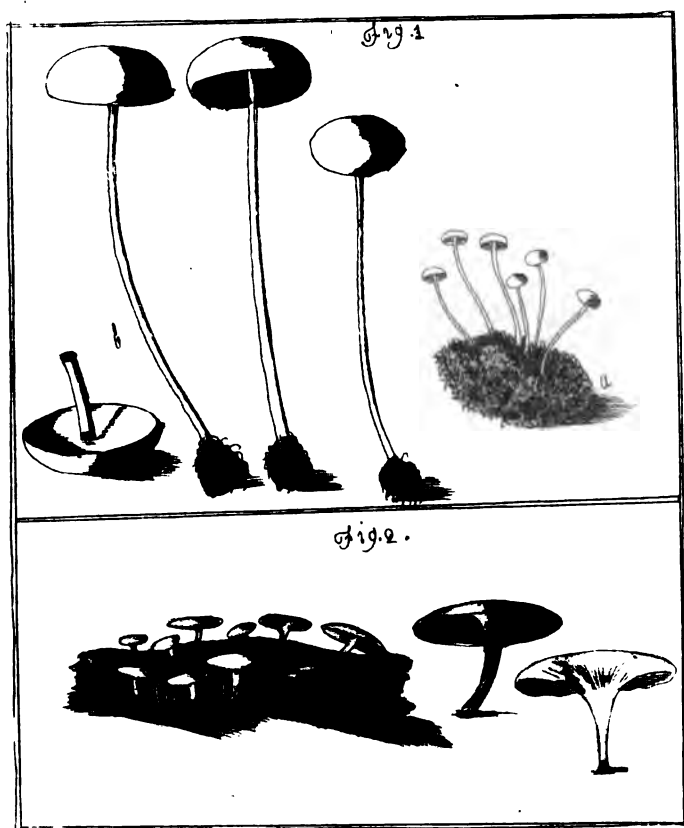
GOLDEN HELVELLA.

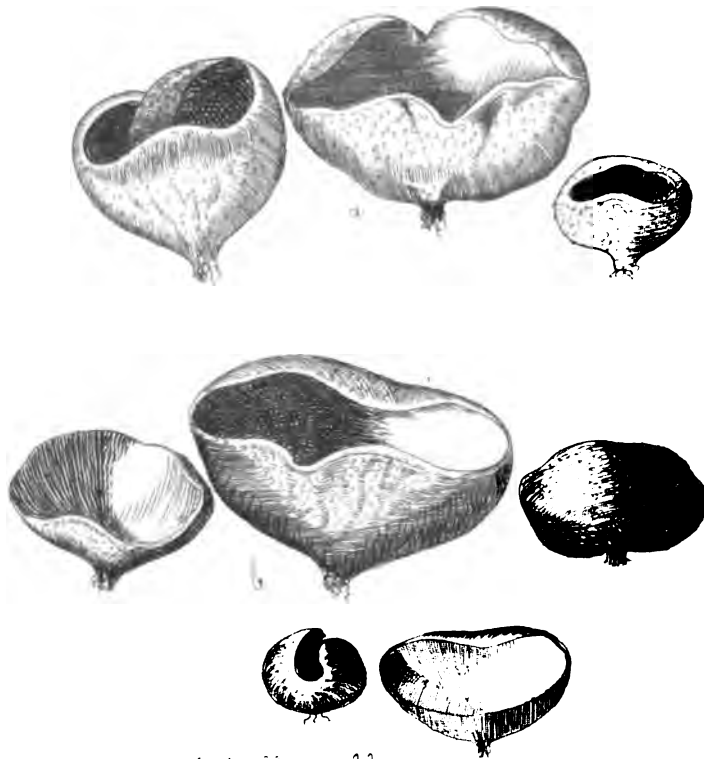
T A B. XCVIII. FIG. II.

THE stem is short, largest above, tapering towards the base, where it adheres to small rotten sticks, &c. by a narrow claw, without any visible fibres.

The pileus is cushion-shaped on the upper side, thin at the margin, when full grown a quarter of an inch in diameter, of a golden colour above, paler underneath. The substance brittle, watery, and semi-pellucid.

Grows on sticks, stalks of plants, &c. in moist and watery places in woods. I find no figure or description which well agrees with either of these plants.





Helvella cothleata
 drawn from the plants by J. C. Davis & 1793

* *acaulis*.

HELVELLA *acaulis turbinata coccleata*. *Peziza turbinata coccleata*. Sp. Pl. 1651. Relhan Flor. 466, No. 970. CXIX. *coccleata*. Hudson Angl. 637. Hall, Hist. 2245. Schaef. Fung. t. 150, 155, 156, 274, 280, et fortessè 158. Vaill. Paris, t. 11. fig. 8.

WREATHED HELVELLA.

T A B. XCIX.

THE root consists of a small central tuft of short fibres.

The plant is of a semi-transparent brittle substance, of a yellowish straw colour when it grows on dunghills, as at *b*. of a brownish dull purple when in garden-walks upon gravel, &c. on old wood often black, particularly on the inside, as at *a*. The diameter from half an inch to two inches; sometimes it grows single, sometimes in bundles, in both states its shape is extremely various, The margin is frequently waved, undulated, and rolled inward; sometimes with rents or gashes, particularly in old plants; it is hollow on the upper side, and imitates the shape of an ear, a saucer, a shell of a patella, a muscle, or a cockle, a thimble, a spoon, or the palm of a child's hand, with many other shapes, as may be seen in SCHÆFFER'S *History of Fungusses*, on the plates above cited. When in a state of perfect growth it emits a copious smoke, on being irritated; a circumstance not attended to by those authors who have placed it among the *Pezizæ*. Lightfoot, in his *Flora Scotica*, page 1052, has taken notice of this property, but did not make a proper use of the remark.

Grows about *Halifax* in autumn, plentifully.

- CXX. *HELVELLA non stipitata, cyathiformis margine obtuso erecto.*
coccinea. Peziza cyathiformis margine obtuso erecto. Sp. Pl. 1651.
Schaeff. Fung. t. 148. Relban Flor. p. 465. No. 967.

SCARLET HELVELLA.

T A B. C.

THIS beautiful *Helvella* adheres to the ground by a central root, consisting of a small tuft of black fibres.

The plant is about the thickness of a dressed sheep's skin, being of equal thickness in every part. The margin obtuse, it is paler than the upper surface of the plant, and is waved and sinuated, in a wild and very pleasing manner. The upper surface is of a bright and high orange colour, in some young plants approaching to a bright scarlet.

It varies greatly in shape, sometimes being spread flat upon the ground, sometimes the margin erected on one side and depressed on the other; sometimes several plants grow from the same point, and are rolled and crumpled one upon another; generally the young plants are smooth and entire on the margin, and shaped like the cup of an acorn. It varies in size, from an inch to four inches in diameter.

Grows on moist gravel which has been lately turned up, in garden walks, by road sides, &c. about *Halifax*. It emits a smoke on being irritated, like the rest of its congeners.

There is a crimson *Peziza*, which has been confounded with this plant, as will be seen in its proper place.



Stactella coccinea in its various Stages and forms.
 taken from various Specimens at various Times. By J. H. ...

Fig. 1.



Fig. 2.



HELVELLA *acaulis*, *pileo pulvinea coccineo glabro*.

CXXI.
cartilaginea.

GRISTLY HELVELLA.

T A B. CI. FIG. 1.

THIS Helvella is of a firm, gristly, semi-pellucid substance, convex on the upper side, where it is smooth and rather slippery to the touch. The margin is acute and smooth, being quite destitute of hairs. The colour is an high orange, or scarlet. The perpendicular section at *a*. shews the thickness of the plant.

Grows upon old walls and rocks amongst moss, particularly the *Polytrichum minus*. *Dell. musc. t. 54, fig. 2*. This is a plant altogether distinct from the *Peziza scutellata* of LINNÆUS, RAY, &c. &c.

HELVELLA (*Purpurea*) *sessilis*, *pileo vario hemispherico, infundibuliformi floriformi, lobato, plicato, crispo purpureo*. *Schæf. Fung. t. 333. Dickson, fasc. 1. 21. Peziza gelatinoso, coccinea cyphis conicis, simplicibus et gregariis. Hall. Hist. 2221.*

CXXII.
sarcoides.

PURPLE HELVELLA.

T A B. CI. FIG. II.

THIS is of a semi-pellucid substance when fresh, and, on being pressed between the fingers, feels like a stiff elastic jelly. Its figure is extremely various, it being, in its several stages, formed like a club, a cone, a turban, an agaric, a flower, a ruffle, an intestine, and many other shapes, peculiar to itself. Its first appearance is very often club-shaped, as at *a*. The colour, while the plant is fresh, is constantly a dull reddish purple, turning black in decay.

Grows between the bark and the wood, on the stumps of oak trees; the first winter after their fall, and is pretty common about Halifax.

Q

A N
HISTORY OF FUNGUSSES,
 GROWING about HALIFAX.

G E N U S V I I .
P E Z I Z A .

- CXXIII. *PEZIZA campanulata lentifera*. Sp. Pl. 1649. *Peziza sericia*. Schæf. *Fung.* t. 180. *Cyatbus sericius intus laevis*. Hatt. Hist. 2215. *Mich. nov. Gen.* p. 222. t. 102. fig. 1. *Vaill. Paris*, p. 56, t. 11. fig. 6, 7. *Hudson Angl.* 633, 1. *Lightfoot Scot.* 1048, 1.

LENTIL PEZIZA.
 T A B. CII. F I G. I.

THE root is a little hard tubercle, emitting numerous short brown fibres. The plant from half an inch to an inch high; it is bell-shaped, spreading out at the rim; the inside smooth and shining with a silky gloss, slippery to the touch, dry, and of a pale whitish mouse-colour. There is a gentle asperity to the touch, on the outside, where it is of a darker colour.

While the plant is young, the mouth of the cup is covered with a white membrane, which breaks in the centre, or is detached round the margin, and discovers the lentil-like seed-vessels; which are at first filled with a white gelly, that afterwards become the seed. Each of these lentil-like vessels is attached to the bottom of the cup, by a small filament.—Grows on putrid wood, or in gravel walks.

- CXXIV. *PEZIZA campanulata lentifera, extus hirsuta intus striata*. Sp. Pl. 1650. Schæf. *Fung.* t. 178. *Relban Flor.* p. 164. No. 962. *striata*.

STRIATED PEZIZA.
 T A B. CII. F I G. II.

THIS species differs from the last, in being formed like an inverted cone rather than a bell, in being of a darker colour, in that the seed-vessels are smaller and paler coloured, in that it is covered with short brown hairs on the outside, and strongly striated within.—Grows on old decaying roots and stocks of trees, about Halifax, but is rare.

Fig. 1.



Fig. 2.



Fig. 3.



Amanita muscaria. S. Bolander Del. et Sculp. 1880.

PEZIZA *infundibuliformis, disco patente sinuato punctato.* Sp. CXXV.
 Pl. 1650. *Elvella cornucopiæ.* Schæf. Fung. t. 165, 166. *Vaill. Paris, t. 13, fig. 2, 3. Var. punctata.* Relhan
Flor. 465, No. 965. Hudson Angl. 634, 5. Lighfoot
Scot. 1050, 5. *cornucopoides.*

CORNUCOPIA PEZIZA.

T A B. CIII.

TAE root is hard, tough, and furnished with a great number of black, short, capillary fibres.

The tubular part is narrow at the base, and expands gradually upwards. The margin is very elegantly lobed and sinuated; sometimes gashed and plaited, and sometimes nearly plain.

The outside of the plant is decorated with rising, branchy veins, and is covered with a bloomy down or powder. The inside is of a dark fordid brown, nearly approaching to black. The surface smooth, and like vellum to the touch. The substance tough and elastic. The plant sometimes grows single, but more frequently in clusters or bundles, five or six from the same root; in this last state, the plants commonly press upon one another, and thereby become distorted, and their shape disfigured.

Grows in the shady parts of woods, where the soil is dry, in the *Shroggs, North-Dean, &c.* about *Halifax.*

There is a variety, in which the surface of the limb is covered with a kind of small grains, as figured by *VAILLANT*, on the plate above cited; and by *SCHAEFFER, t. 166.*

CXXVI. PEZIZA *subspitata campanulata, interne cremefino externe carneo, margine integro nudo attenuato.*
coccinea.

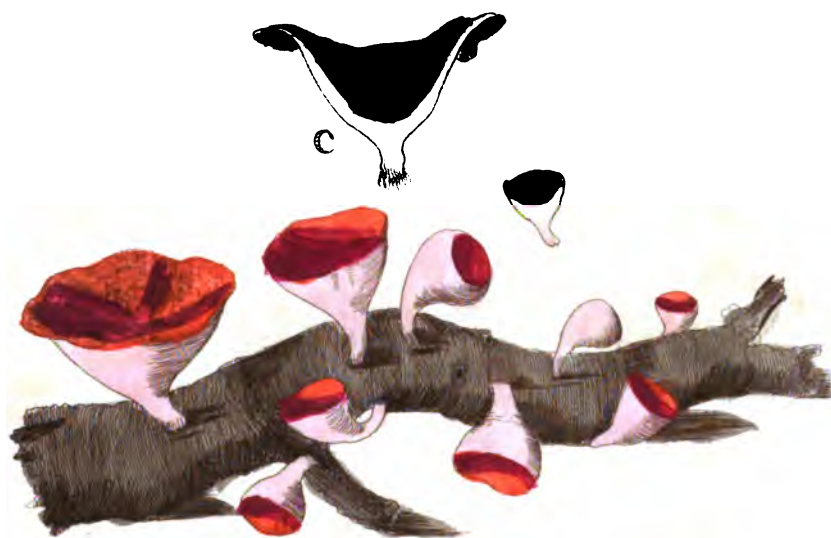
SCARLET PEZIZA.

T A B. CIV.

THIS plant, and the *Elvella coccinea*, figured by *Shaeffer*, *t.* 148, and by me, *t.* 100, have been considered by most authors as varieties of the same species; and their *synonima* are so confounded together, by the publishers of Floras, that it is next to impossible to ascertain properly, which of them belongs to the one and which to the other. In the *Helvella coccinea*, the plant is of equal thickness throughout; the margin blunt or obtuse; the colour is an high orange or bright scarlet on the upper side, and of the same colour, only a little paler, on the outside. Grows sometimes to be three or four inches in breadth, and of various irregular shapes; is of a friable, brittle substance, and found most frequently upon gravel; and, above all, ejects its seeds in form of smoke.

In the *Peziza coccinea* now before me, the substance of the plant is thickest in the middle, growing thinner to the margin; the colour, in the inside of the cup, is a glowing crimson, inclining to a bloody hue; the outside a pale carnation colour or a pure white. The largest specimens are about an inch in diameter, and most commonly of a regular bell-shape. The substance is firm and tough, and it is found on old sticks, or the branches of dead trees, and never ejects its seeds in form of smoke. I have seen a stalked variety of it perfectly white on the outside, as at A. B. A full-grown plant is cut perpendicularly at C.

Grows about rivulets, in woods about *Halifax*, plentifully, in Autumn and Winter.



J. Bolton

Fig. 4



Fig. 2



PEZIZA *dura coriacea glabro, marginibus lævis, stipite nigro.*CXXVII.
ocbrulosa.

YELLOWISH PEZIZA.

TAB. CV. FIG. I.

THIS adheres, by a claw at the base, to putrid wood, in wet and moist places. It is of a tough coriaceous substance. The stem solid, and of a black colour, which blackness changes to a dusky kind of yellow, towards the top. The margin is smooth, even, and rather obtuse; the inside of the cup is smooth, and of a dusky kind of ochre colour.

I have gathered this plant in several places near *Halifax*. I find no proper figure or description of it.

PEZIZA *infundibuliformis disco patente, marginibus sinuatis undulatis crispus. Elvella tubaeformis. Schaef. Fung. t. 157, fig. 2. Mich. nov. Gen. t. 82, fig. 2. Vaill. Paris, t. 13, fig. 7, 8, 9.*

CXXVIII.
undulata.

WAVED PEZIZA.

TAB. CV. FIG. II.

THE root is brown, hard, and furnished with short, black fibres. The tube is narrow towards the base, and of equal breadth for about half the length of the plant; it then spreads out into the limb, which is elegantly undulated, waved, and curled, at the margin. It has a few almost imperceptible veins on the outside, the inside is smooth, and feels a little downy to the touch. The colour on the outside is a dusky golden hue, strongest near the root; the colour within a dusky brown. The substance, tough and elastic. The height, one or two inches.

It is a rare species here. I gathered the specimens here figured and described, in *Ramsden-Wood*, October 17, 1786.

CXXIX. PEZIZA *stipitata, stipite filiformi, limbo plano, tota luteo.*
tuba.

TRUMPET PEZIZA.

T A B. CVI. FIG. I.

THIS beautiful little *Peziza* adheres, by a claw at the base, to the putrid stems of decayed plants, in moist places near rills of water. It is shaped like a trumpet in miniature. The height about half an inch. The colour a bright pale yellow.

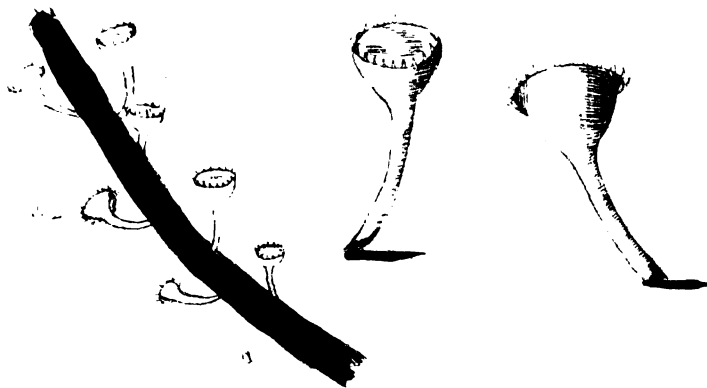
It is a little magnified at *b.* cut through the middle, downwards, at *c.* Natural size at *a.* I find no figure or description agreeing with this plant.

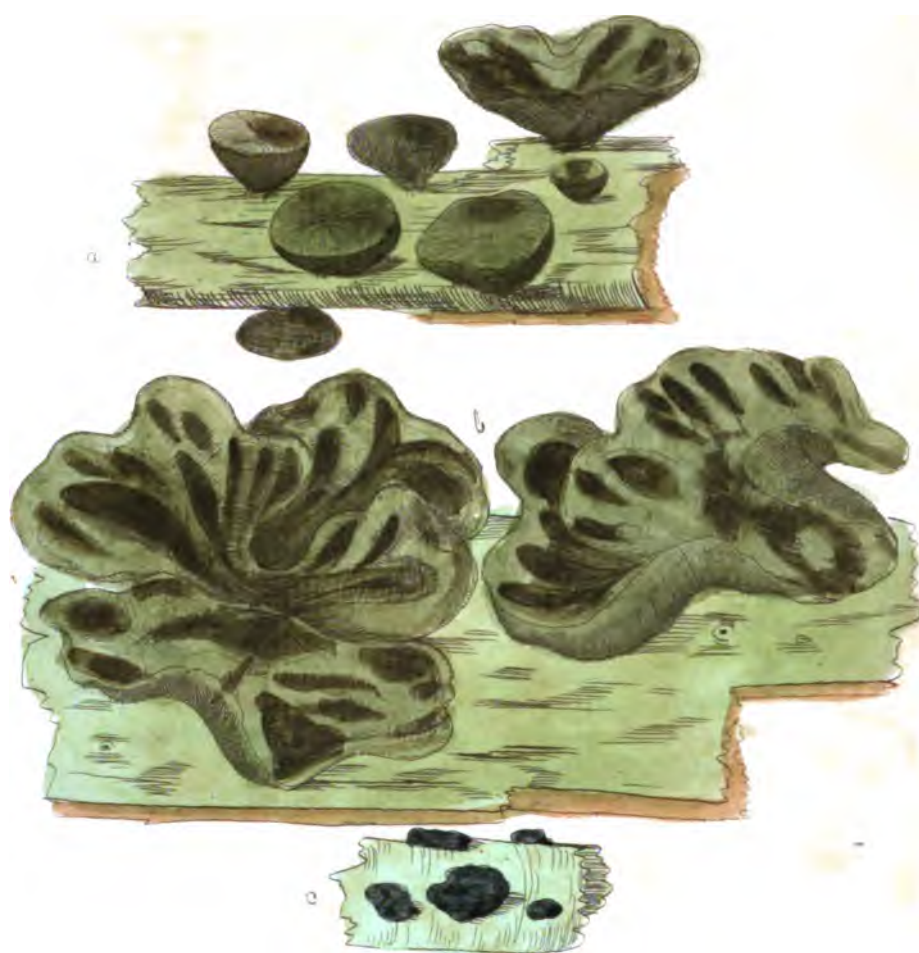
CXXX. PEZIZA *stipitata, stipite incurva, marginibus ciliaris.* Mich.
inflata. Gen. t. 86, fig. 13.

BENDED PEZIZA.

T A B. CVI. FIG. II.

THIS little pretty *Peziza* grows on putrid vegetable substances, in damp places in woods, and about rivulets. It is constantly bent, as exhibited in the figure. The stem is white and pellucid. The cup hemispherical, somewhat opaque, and of a soft pale buff colour. Round the margin it is decorated with upright pellucid points, which look like hairs to the naked eye, but, on being a little magnified, I found them to be thin, transparent films, broad at the base, where they adhere to the verge of the cup, and terminating in a point at top. The plant shrinks much, and becomes tough in drying.





PEZIZA *concavo rugosa auriformis*. *Lyn. Syst. Nat. Mur.* CXXXI.
p. 23. Tramella auricula. Sp. Pl. 1625. Hudson Angl. auricula.
563. Gleditsch, p. 39, No. 3. Sterb. Theat. t. 27, fig. H.
Relhan, Flor. 466, No. 971. Mich. nov. Gen. t. 66, fig. 1.

EARED PEZIZA.

T A B. CVII.

THIS adheres to the bark of old elder and willow trees, by a small central root or umbilical cord. The whole plant is of a dark olive colour, and assumes great variety of shapes, depending on its age, or the dryness or moistness of the air. When young, and in a moist state, it is frequently turbin-shaped, as at *a*. when further advanced in growth, in rainy weather, it is greatly extended in magnitude, becomes lobed and undulated; the lobes lying over one another. The substance quaking and gelatinous, of a dusky kind of olive colour, and two or three, sometimes four inches in diameter; it appears in this state, as at *b*. In dry seasons it shrinks up, and becomes of a coal black colour, as at *c*. The upper side is constantly smooth; the under side has a kind of hairiness or *granule* upon it, which gives a gentle asperity to the touch.

HUDSON makes it a *Tramella*, as did LINNÆUS in some of his works. Do not the *Tremellæ* and the *Pezizæ* touch one another in this plant?

Grows about *Halifax*, but is rare. The specimen here figured and described, I gathered on the bark of an old willow tree, by *Red-Beck*, near *Sbibden-Hall*, in February, 1789.

- CXXXII. *PEZIZA plana margine convexo piloso. Sp. Pl. 1651. Mich. scutellata. Gen. 207, t. 86, fig. 19. Schæf. Fung. t. 284. Ray Syn. p. 18, t. 24, fig. 3. Relhan Flor. 466, No. 969. Hudson Angl. 637, 14. Lightfoot Scot. 1053, 8.*

CILIATED PEZIZA.

T A B. CVIII. F I G. I.

THIS grows most commonly on cow's dung, in the fields, sometimes on rotten wood, or on moss in a moist and putrid state. Its first appearance is like a poppy seed, of a pale orange colour; the prominent part covered with stiff upright hairs, when a little magnified, appearing as at *a*. soon the top opens, as at *b*. when the hairs, which before seemed to cover the whole top, are found to adhere to the verge of the cup only; and the shape of the whole imitates a globular goblet. As it advances in growth, the rim expands, falls back; and the disk becomes flat, only a little elevated at the margin. The plant is of a reddish orange colour.

Grows in fields about *Halifax*, plentifully.

- CXXXIII. *PEZIZA plana, marginibus obtusis ciliaris. cærulea.*

BLUE PEZIZA.

T A B. CVIII. F I G. II.

THIS beautiful *Peziza* adheres, by a small central root, to putrid wood in moist places. The outside is black and smooth; the inside of a bright blue. The margin a little paler and obtuse, being surrounded with soft pale-coloured hairs. The two large figures are magnified.

I do not know that this plant has before been figured or described. I gathered these specimens under the fir trees, at *Burks-Hall*, near *Halifax*, in October, 1782.

Fig. 1.



Fig. 2.

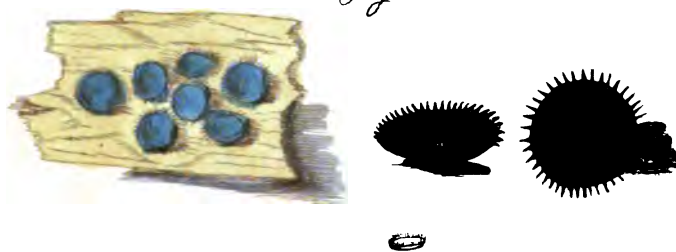
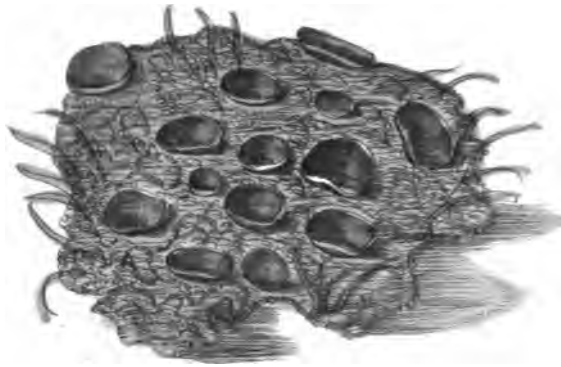


Fig. 1



Fig. 2



PEZIZA *acaulis, disco viridis, margine nigris.*

CXXXIV.
viridis.

GREEN PEZIZA.

T A B. CIX. FIG. I.

THIS pretty *Peziza* adheres to decaying oak leaves, by its whole under side. The disk is of a dark green colour. The margin broad in proportion, and black. The figures, on the leaf, are the natural size; the two separate ones are magnified.—I saw this plant, in abundance, on the fallen decaying leaves in *North-Dean*, in December, 1785, when this figure was taken. I find no account of it amongst authors.

PEZIZA *acaulis, disco fuscis, marginibus elevatis pallidis.*

CXXXV.
fusca.

BROWN PEZIZA.

T A B. CIX. FIG. II.

THIS grows on dunghills, when they become dry by long lying unmoved. The disk is of a strong brown. The substance of the plant thin, adhering by its whole base, except the margin; which is entire, a little elevated, thin, and of a pale kind of olive colour. I find no proper account of this species.

LIGHTFOOT, in his *Flora Scotica*, p. 1054, after his description of the *Peziza scutellata*, adds, “It varies of a yellow and brownish colour, and sometimes with a naked margin, destitute of hairs;” but my plant is quite distinct from the *Peziza scutellata*, in any of its states or stages. I have met with it in several places about *Halifax*, but not in great plenty.

R

A N
HISTORY OF FUNGUSSES,
GROWING about HALIFAX.

G E N U S VIII.
C L A V A R I A.

* *indivisæ.*

CXXXVI. CLAVARIA *clavæformis simplissima*. Sp. Pl. 1651. Schaef.
psittacina. Fung. t. 171. Vaill. Paris, t. 7, fig. 5. Mich. Gen. t. 5,
6, 7, 9, 10, 11. Scheuchzer Iter. alp 1, p. 29, t. 3, fig. 3.

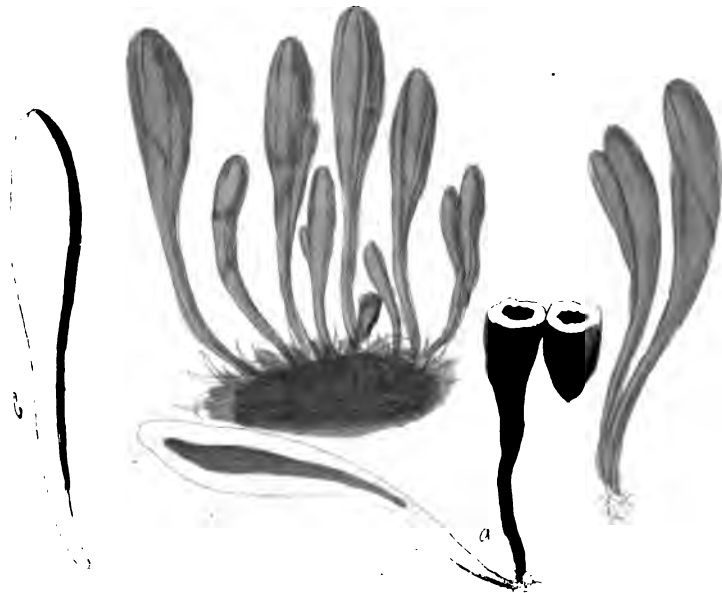
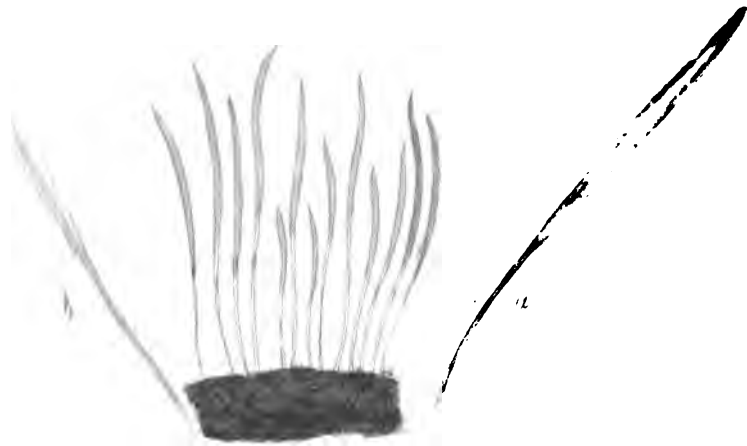
S I M P L E C L A V A R I A.

T A B. CX.

IT has a brown fibrous root, which produces sometimes one single, sometimes a great number of, club-shapen plants. It varies extremely in size and colour; its height is generally two or three inches, its thickness about that of a duck's quill. Sometimes it is of a pure white, but varies through all the gradations of yellow, from a pale tinge to a deep strong golden or orange colour. It is of a waxlike substance, easily breaking between the fingers. The separate plants are most commonly simple, and terminate in an obtuse point; but they are sometimes bifid or forked, as expressed in the figure.

On moors amongst moss, where it generally grows single, I have seen specimens four or five inches high. It is a very common plant on dry banks and in barren pasture grounds, about *Halifax*. Authors have made many imaginary species, from the various appearances of this plant. *Vid.* HUDSON'S *Flora Angelica*, p. 638.





CLAVARIA *clavata petiolata*.

CXXXVII.

gracilis.

SLENDER CLAVARIA.

TAB. CXI. FIG. I.

I Believe this plant has been considered as a variety of the last, but is at once distinguished, by having a foot-stalk essentially different, in colour and texture, from the club which it sustains. The club is an inch in length, of a dusky white, and, like the other *Clavariæ*, is of a wax-like appearance. The stem is half an inch long; it is smooth, pellucid, and of a colour a little darker than the stem. The plant never grows larger than is expressed in the figure. *a.* is a plant magnified. *b.* a longitudinal section of the same.—Grows in shady places in garden-ground, which has lately been dug;—in Mrs. GAYGILL's garden, at *Sba*, abundantly; where I gathered the specimens here figured and described, in October, 1786.

CLAVARIA *clavata intigerrima compressa obtusa*. *Sp. Pl.* CXXXVIII.
 1652. *Schæf. Fung. t.* 327. *Hudson Angl.* 638, 3. *ephioglossoides*.
Relhan, Flor. 467, No. 974. *Lightfoot, Scot.* 1058, 4.

BLACK CLAVARIA.

TAB. CXI. FIG. II.

THIS has a small hard root, furnished with short fibres. The plant is two or three inches high, slender towards the root; the clubbed part greatly increasing in thickness, and terminates very bluntly at the top. While young it is solid within, and smooth on the outside; as it advances in growth it becomes hollow within, as at *a.* afterwards the substance shrinks, and the surface becomes depressed, sulcated, or wrinkled. The colour is at all times black on the outside, the inside white. —Grows in moist pastures, amongst grass, in several places about *Halifax*.

R 2

CXXXIX. CLAVARIA *stipite elongata, capillaria, clavula terminali sub-elongata*
gyrans. cylindrica terminis utroque oblongata. Relhan Flor. App. ult. p. 29.
 No. 1102.

TWISTED CLAVARIA.

TAB. CXII. FIG. 1.

IT adheres to small twigs and branches of trees, when fallen in moist places and become putrid. It adheres to them by the curved base of the stem, without visible fibres. The stem is the thickness of an hair, and more than half an inch long; it is of a blackish colour under the eye, but between the eye and the light, of a beautiful crimson; it is upright and smooth while the plant is in vigour, soon after it is taken up it dries, becomes compressed and twisted, as at *a*. The club is white, half an inch long, obtuse above and below, as expressed on the plate. It is magnified, in different degrees, at *b. b*.

I gathered these specimens in a moist place, near *Lee-Beck*, half a mile from *Halifax*, October 22, 1788.

CXL. CLAVARIA *ramis confertis ramosissimis fastigiatis obtusis luteis. Sp.*
fastigiata. Pl. 1652. Schæf. Fung. t. 270, 172, 174. Ray Syn. t. 24, fig. 5.

LOW CLAVARIA.

TAB. CXII. FIG. II.

THIS arises singly or in clusters, from a very small root, which is furnished with numerous downy fibres. The branches are small near the base, increasing in thickness upwards, and, in their ascent, are divided and subdivided into numerous branches, all of which are lopped off at top, with a broad termination, which is often decorated with small rising points round the margin. Sometimes the margin is dentated or crenated, it is most commonly of a yellow or golden colour, but sometimes varies to white or purple.

Grows in barren pastures, about *Halifax*.—Does not the figure in *Vaill. Paris, t. 8. fig. 4.* which he calls *Clavaria coralloides*, belong to this plant?

Fig. 1.

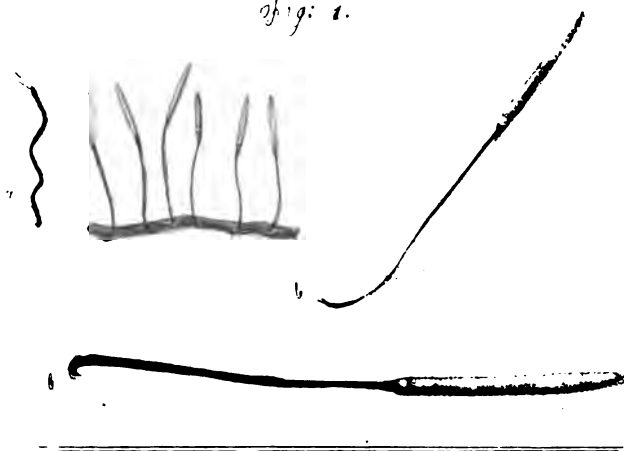
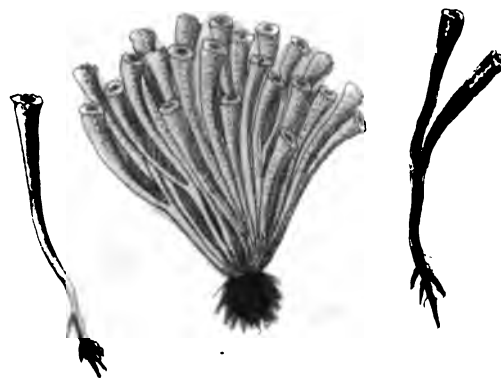
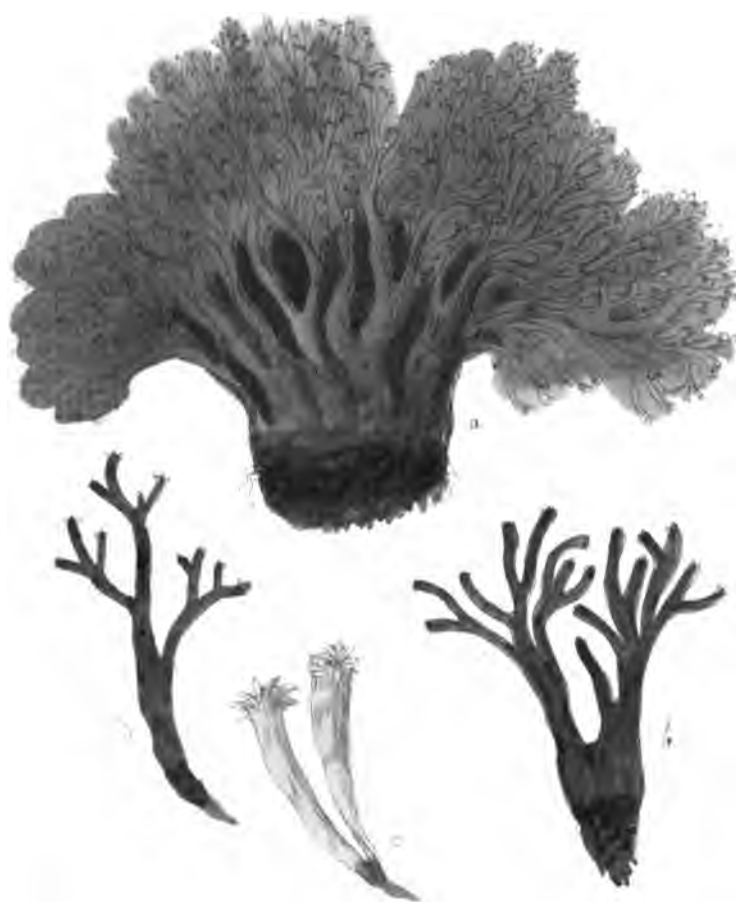


Fig. 2.





CLAVARIA *ramis confertis ramosissimis inæqualibus.* Sp. Pl. CXLI.
 1652. Schæf. Fung. t. 175, 176, 177, 285, 288. Tourn coralloides.
Inf. t. 332, fig. B. Sterb. Theat. t. 11, fig. A. C. D.

CORAL CLAVARIA.

T A B. CXIII.

THIS, from one common root, which is brown and furnished with many fibres, sends up numerous branches, large at the base, and repeatedly divided and subdivided into innumerable lesser ones, each of which terminates at top in three or four tooth-like segments, of equal height. The whole plant is sometimes as large as a *Coleflore*.

It varies greatly in colour, being white, purple, yellow, or olive-coloured; the last of which is most frequent in this neighbourhood.

Grows in several woods about *Halifax*, in October.

LIGHTFOOT says, it is reputed to be one of the best of the fungus tribe, for the Table; and is eaten by the Germans, under the name of *Ziegenbert*.

The yellow specimen figured on my plate, at *c.* has been considered as a variety of this plant, (*See Vaill. Paris*) but I think it belongs to the *Clavaria foetigiota*, as before mentioned.

- CXLII. *CLAVARIA ramis ramosis inæqualibus luteis.* Sp. Pl. 1654.
muscoides. Schæf. Fung. t. 173. Sterb. Theat. t. 11. B. Ray Angl.
 t. 24, fig. 7. Hudson Angl. 640, 8. Relban Flor. 468.
 No. 977. Lightfoot, Scot. 1062, 9. Bulliard, pl. 264.

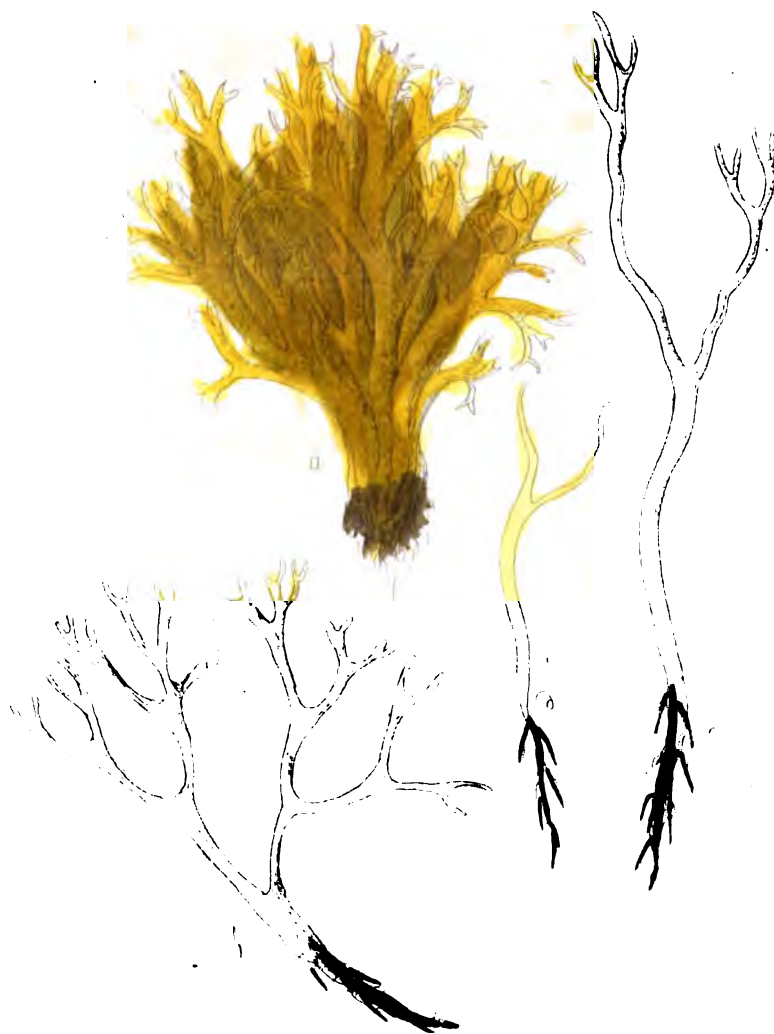
FORKED CLAVARIA.

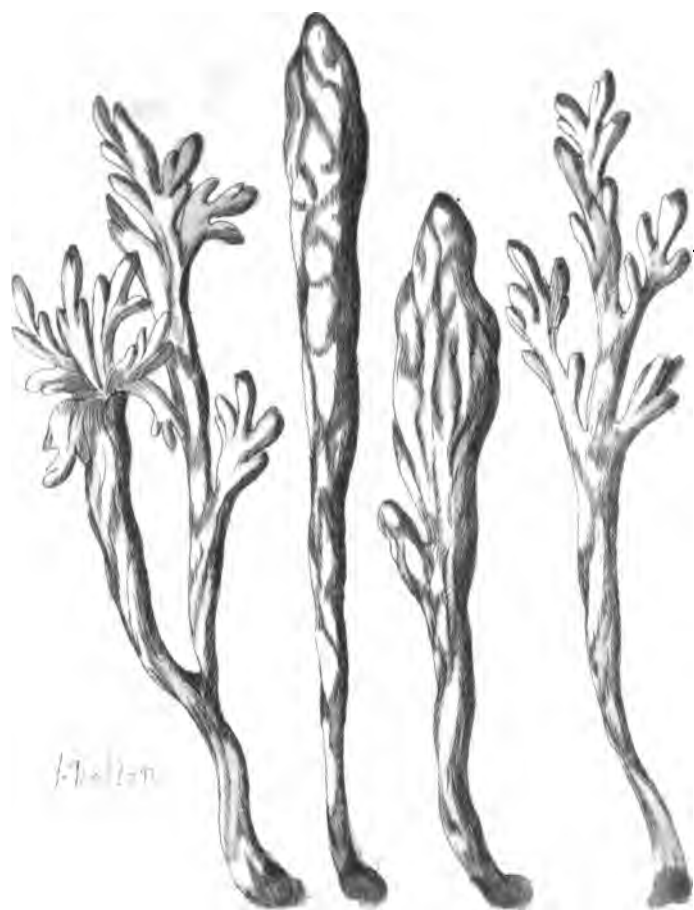
T A B. CXIV.

THIS, from a brown fibrous root, sends up the plants sometimes single, as *b. c. d.* sometimes they rise in clusters or bundles, from a small contracted base, as at *a.* in both cases the branches are divided, in a *subdichotomose* order, and always with a forked termination. Sometimes the grains of these terminal forks are of equal, sometimes of unequal length; sometimes they diverge at their origin, and converge near the point. The whole plant is of a fine gold colour while fresh, turning brown in decay. It varies in height from one to four or five inches.

It is a very common plant in cold dry pasture grounds, about *Halifax*, in September and October.

I have seen large luxuriant specimens of this plant, the size of a man's fist; the branches much swelled at the divarications, short, and much entangled together, but all united at the base, and issuing from one small root.





CLAVARIA *subramosa erecta alba.*

CXLIII.

elegans.

ELEGANT CLAVARIA.

T A B. CXV.

THIS plant, from an hard, brown, fibrous root, rises perpendicularly to the height of four or five inches. Sometimes it is simple and undivided, the surface wrinkled transversely, and sunk in longitudinal furrows, with alternate ridges; the whole of an elegant club-shape, as in the two middle figures. Sometimes it is branched in a beautiful manner, in imitation of an hand, a flower, the horn of a rein deer, &c. &c. all the divisions terminating obtusely.

In both states, while fresh and growing, it is of a pure silvery white; and, when viewed between the eye and the light, looks like, in substance and texture, the finest virgin wax. In decay it changes to a pale brown colour, withers, and soon disappears.

Grows in plenty, under the fir trees about *Fixby-Hall*, in September; I have not found it elsewhere.

A N
HISTORY OF FUNGUSSES,
GROWING about HALIFAX.

G E N U S IX.
L Y C O P E R D O N.

- CXLIV. LYCOPERDON *globosum solidiusculum lacrum centro farinifero radice instructum. Sp. Pl. 1653. Hall. Hist. 219, 1. Sterb. Fung. t. 32, fig. B. B. B. Lycoperdon cervinum. Schæf. Fung. t. 188. Dickson Crypt. fasc. 1. p. 25. Michx Gen. t. 99. fig. 2, 3, 4. Lycoperdon aurentium. Bulliard, pl. 270. Vaill. Paris, t. 16. fig. 5, 6, 7. 8.*

SUBTERRANEOUS PUFF-BALL.

T A B. CXVI.

THIS Puff-Ball sometimes grows to a considerable size, under ground. I have sometimes found it the size of fig. *a.* in the plate; it is then destitute of proper roots, but emits here and there an hairlike fibre from its surface; it is then of a brown colour on the outside, rough to the touch, and the surface sometimes covered with *papillæ*; sometimes marked with furrows, which imitate a rude kind of network, or covered with angular warts, of various irregular sides; sometimes smooth, as at *a. a.*—in this state it is firm and solid, so as to resist the strongest pressure between the hands. The bark is very thick, and its substance white. The internal substance of the plant of a milk colour, and a very close texture.

When it arises above the surface, those fibres which chance to be lowest, form themselves into a root, as at *b. c. d.* the plant increases in growth, and the figures on its bark are proportionably enlarged; it assumes a variety of colours, when exposed to the air, as yellow, green, brown, reddish, &c. &c. When further grown, the milk colour changes to a purple, and is beautifully netted with black veins; at last it changes quite black. I have observed it in all these states, in various places in this neighbourhood.

In its smooth state it is the *Lycoperdon spadiceum* of SCHÆFFER; when covered with rising warts it makes the *Lycoperdon aurentium* of BULLIARD, and the *Lycoperdon* of VAILLANT, t. 16, fig. 8.

The bark never breaks, as in the Dusty Puff-Balls; it is perforated in many places by small *scorabæii*, which feed in great numbers upon the internal substance; by means of which insects, the seeds are, probably, conveyed into the earth, for the production of future plants.—In BULLIARD's figure, a fine conjectural smoke arises from one of these perforations.



Lycopodium ceratinum with its varieties, faithfully copied from Nature, in October, A.D. 1788. by J. Bolton at Scitney near Halifax.



LYCOPERDON *subrotundum, lacerato debiscens.* Sp. Pl. CXLV.
 1656. Schæf. Fung. t. 184, 185, 186, 187, 189, 190, *bovista.*
 191, 292, 293, 294, 295. Marfiglii Hist. Fung. Carr.
 fig. 1, 2. Mag. monstrofa. Mich. Gen. t. 97, 98. Vaill.
 Paris, t. 16, fig. 4. t. 12, fig. 15, 16. Relhan, Flor. 469,
 No. 979. Lightfoot, Scot. 1067, 2. Hudson Angl. 642, 4.

VARIABLE PUFF-BALL.

T A B. CXVII.

THE varieties of this plant in size, figure, colour, and surface, are almost endless. In the annexed plate, I have selected such subjects, as I thought most likely to give an idea of the plant in all its states. The eight figures before us, being mixed and blended together as they are in Nature, will exhibit almost endless forms; but to give particular descriptions of each is not necessary.

SCHÆFFER, in his *History of Fungusses*, has bestowed eleven large plates on this species, and has copied many of its varieties in near fifty elegant figures. In the *Floras* of RELHAN, HUDSON, LIGHTFOOT, &c. the Synonyma of former authors are, with much care, applied to those varieties, which they respectively were meant to discriminate.

The best specific character of distinction in the species, is, its being surrounded with three separate coverings; the first of these is inseparably connected with the pith or substance of the plant; the second is a tough, leathery, smooth coat; the third or outermost, a soft epidermis, easily rubbed off; and it is in these *epidermi* only, that those varieties of figures, we observe on the surface of the plants, have their existence.

This character, however, must be attended to, while the plants are growing and in a state of vigour; for afterwards the epidermis, with its figures, falls off, vanishes, and leaves the plant quite smooth in its last stages.

S

CXLVI. LYCOPERDON *bivolvatum*, *primum album denique nigrum*.
globosum.

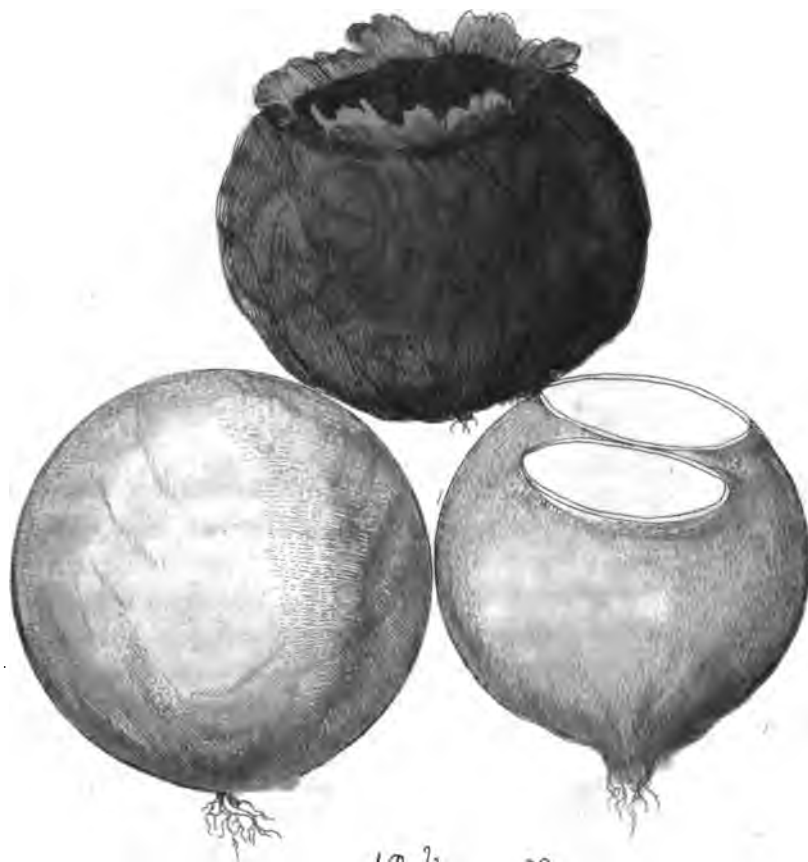
GLOBE PUFF-BALL.

T A B. CXVIII.

I Am desirous to distinguish this plant from the *Lycoperdon bovista*, for the following reasons: In that it is surrounded with two covers only; the leathery coat, which surrounds and adheres to the pith, and a soft downy epidermis, which is easily rubbed off, but is never distinguished with any kind of figures on its surface: In that it is constantly of a globular figure, of a snow white colour, till at maturity, and turns black in decay; and in that it constantly grows amongst grass in meadow or pasture ground, and is never found in woods, or in company with the *Lycoperdon bovista*, in any of its shapes. A ~~fine~~ cut off, and turned down at the top of one of the figures, shews the colour of the pith, while the plant is fresh; afterwards the downy covering falls off, the other coat lacerates, with a wide mouth, as in the upper figure; turns black, and remains in this state, full of a black smoky powder, for many weeks.

It is a very common plant in the fields, in this part of *Yorkshire*; may, while young, be eaten with safety; and has a taste much like that of the common mushroom.

The powder is used here, for stenching blood, in small new wounds.



J. Bolton. 1788

Fig 1

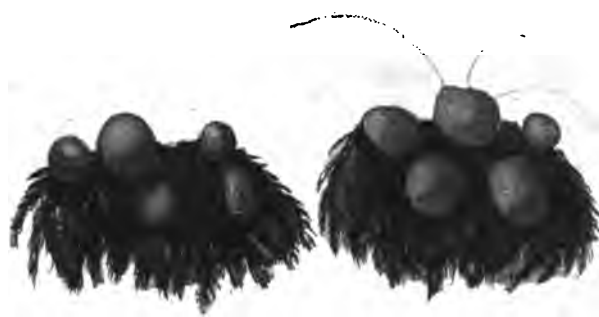
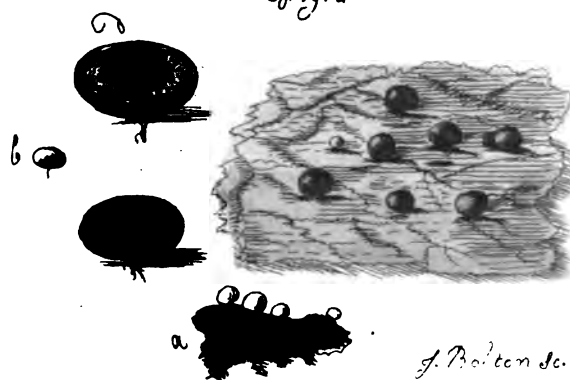


Fig. 2



J. Bolton Sc. 1783.

GROWING ABOUT HALIFAX. 119

LYCOPERDON *cortice farinaceo purpureo*. Sp. Pl. 1654. Schæf. Fung. t. 193. CXLVII.
Lycoperdon epiphyllum, Hudson Angl. 645, 14. *epidendrum*.

RED PUFF-BALL.

TAB. CXIX. FIG. I.

THE specimens before me, grow on heaps of *Bryum scoparium*, which have been some time dead, and are turning to a wet mould, or vegetable earth.

The figure is round or oval, in some oblong, or pointed on one side. The external covering, in the young plants, is of a soft substance, and a reddish colour; in the older specimens, this outer covering is fallen off, and the inner is of a mouse colour, and a shining surface. The root consists of two or three downy filaments, by which it adheres to the soft spongy matter upon which it grows. On being touched, or gently pressed, it ejects a fine dust or powder, of a pale pink colour, from various small perforations in several parts of the surface. This powder, under CUFF's first magnifier, appeared to be a spherical seed.—Grows in woods about *Halifax*.

A N

HISTORY OF FUNGUSSES, GROWING about HALIFAX.

GENUS X.

S P H Æ R I A.

* with simple naked *sphaerula*.

SPHÆRIA *disformis varis-coloris carne alio*. Dickson Crypt. fasc. 1, p. 23. Murr. Syst. 981. Hall. Hist. 2178. Gleichen Suppl. t. 6. Relban Flor. Append. 34, No. 1057. CXLVIII.

CABBAGE SPHÆRIA.

TAB. CXIX. FIG. II.

THIS grows on the leaves of cabbage, when in a moist, decayed state, and reduced to a kind of slippery mucilage; they are found, in the greatest plenty, where several folds of the leaves lie over each other, and grow on every fold. In their first stage they are white, gelatinous, transparent, and the size of a mustard seed, as at *a*. from which they change to a reddish brown, of various degrees, as is expressed in the figure. When full grown they are the size of a lentil, and turn quite black: As it approaches decay, it becomes hollow in the centre, as at *d*. Its root is a single white filament.—It is very common about *Halifax*.

S 2

brassica.

- CXLIX. SPHÆRIA *simplex aggregata coccinea minima*. Dickson *Crypt. fas.* 1, p. 22. Weigel, p. 45, t. 2, fig. 11. Relban *Flor. Append. alt.* p. 31, No. 1105.
meri.

MULBERRY SPHÆRIA.

T A B. CXX. FIG. I.

IT adheres to the decaying bark of fallen elm trees, by a narrow base or claw, of an hard firm substance, and of a red colour. The separate *sphærule* are naked, or without common cover; they are not properly globular, but rather turban-shaped, adhering by a narrow base, as at *f*. A single *sphærule*, laid open in two directions and magnified, is seen at *d. e.* A cluster, cut perpendicularly through the centre and a little magnified, appeared as at *c.*—*a. b.* is the natural size. At its first appearance it is of a golden or orange colour; when full grown, a deep bloody scarlet; turning quite black in decay.

Found in great plenty about *Halifax*, in January and February.

- CL. SPHÆRIA *nuda sphærule turbinata extus glauca—intus alba*. Lichen
glauca. *caruleo—nigricans*. Relban *Flor.* p. 424, No. 847.

SEA-GREEN SPHÆRIA.

T A B. CXX. FIG. II.

THIS Sphæria, like the last, is naked, and without common cover. The *sphærule* are turban-shaped, as at *b.* they are of a glaucous colour on the outside, and white within; cut open and magnified, they appeared as at *d. e. f.* while young they are full of a white jelly, like the rest of the genus; when old the turbinated top shrinks down, turns black, and becomes hollow, as at *c.* The *sphærule*, in this state, have been accepted for the Shields, by those who chuse to call the plant a Lichen.

Grows on *Brabam-Moor*, near *Leeds*. The Lichen *carulea nigricans*, of LIGHTFOOT, he says, is beset with numerous black convex tubercles or warts; this plant I have seen, and believe it to be a variety of the *L. atro albus*, of the same author. LIGHTFOOT saw not the fructification of *atro albus*; I have seen them, and found them to be perfect Shields, of a reddish colour.

Fig: 1

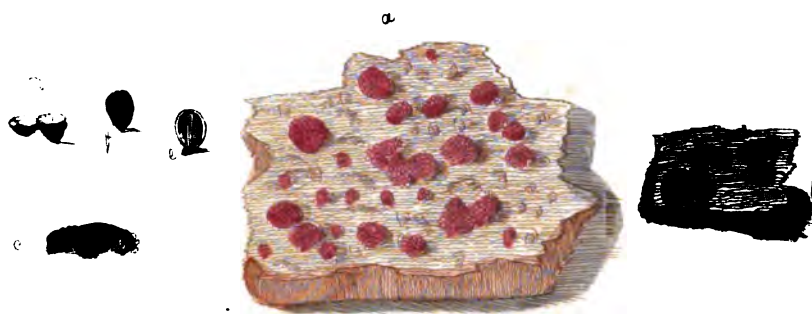
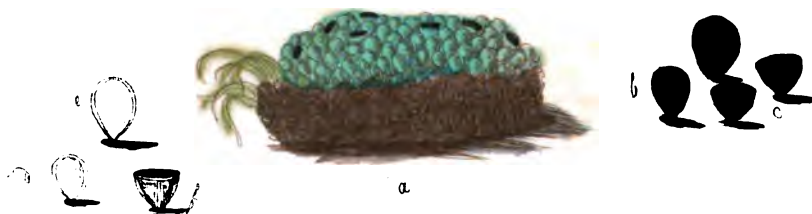
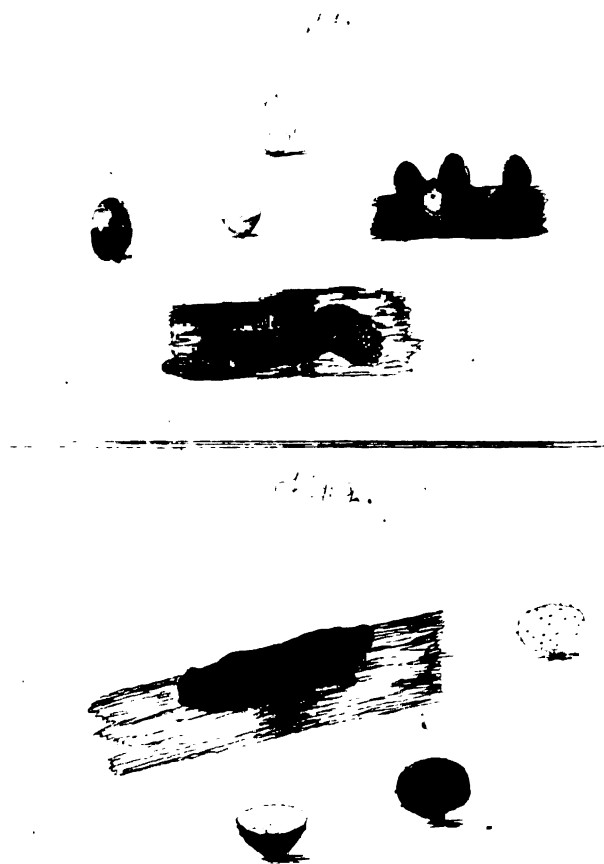


Fig: 2



Holton del. et sc. 20th 1789.



SPHÆRIA *simplex, ovata sanguinea apice perforata.*

CLI.
sanguinea.

BLOOD-COLOURED SPHÆRIA.

T A B. CXXI. FIG. I.

THIS Sphæria grows on putrid wood; great numbers grow in close neighbourhood, but do not in any wise adhere to one another. They are oval or egg-shaped; the base being broader than the top. Each has a perforation in the top, and is about the size of a poppy seed, as in the lower figure; the other figures shew them, as they appeared when magnified, and cut both perpendicularly and horizontally. The colour, on the outside, is a deep, bright, bloody hue; the surface shining with a gloss, like polished coral; the inside and the seeds are white.—This specimen grew on putrid wood, beside the spring of *Elm-Cragg-Well*, at *Bell-Bank*, near *Bingley*, in June, 1786.

SPHÆRIA *simplex, globosa virida cortice granulata, granula fusca.*

CLII.
viridis.

GREEN SPHÆRIA.

T A B. CXXI. FIG. II.

THIS is about the size of a white mustard seed; when growing, of a fresh green colour; when dry, a pale brown. It is of a globular figure; adhering, by a small point at the base, to small sticks, stems of plants, &c. when in a state of decay. The surface is studded, at equal distances, with small brown grains, in which I could not perceive any pores. In this, as well as the last, the young plants are full of a white gelly, which, when they are at full growth, changes to a dry powder.

- CLIII. SPHÆRIA *simplex, globosa nigra nitida. Sphæria aggregata. Relban*
bombardica. Flor. 35, No. 1061. Lycoperdon nigrum. Lightfoot Scot. 1069,
t. 31, fig. inf. Mich. Gen. t. 54, ord. 37, fig. 4.

GUNPOWDER SPHÆRIA.

T A B. CXXII. F I G. II.

THESE are globular grains, of a shining black colour, growing close together in vast numbers, and so aptly resembling fine gunpowder, that, when I first saw the plant, I was for a moment actually deceived with it. I first found it on the root of a large ash tree, the trunk of which had been sawn off close by the ground; it covered almost the whole surface, in one single stratum; the plants being separate, or not adhering to one another.

Grows most frequently on the end of the grain, on stumps of trees; rarely on the side of the grain. The old plants are perforated in the centre, and white within.

** *aggregate, covered sphærulæ.*

- CLIV. SPHÆRIA *acaulis, aggregata nigra nitida.*
depressa.

DEPRESSED SPHÆRIA.

T A B. CXXII. F I G. I.

THIS is of an intense black colour, the surface shining, the figure generally oblong or oval, sometimes irregular. It is of an hard substance, and the rotundance of the black sphærulæ, which are lodged under the bark or common cover, make the surface seem as if covered with low smooth warts. The substance of the common cover is firm and hard, and internally of a fair white; and is replete with sphærulæ, which are of a glossy black.

It differs from the *Sphæria tuberculosa*, in being of a black colour, in being a larger plant, in its compressed figure, in that the bark is internally white, in that the sphærulæ are more numerous, and in that it grows on the external, not internal, rind or bark of fallen and decaying branches of trees.

Fig: 2.

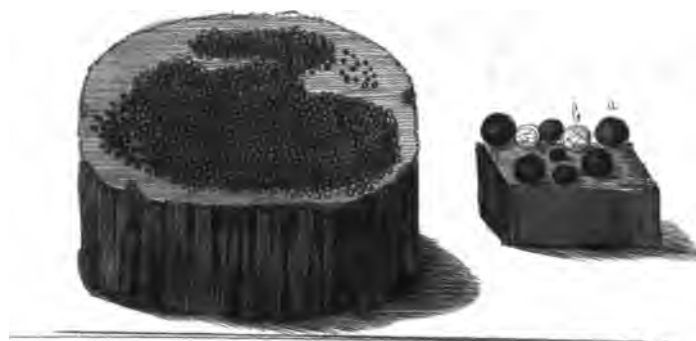
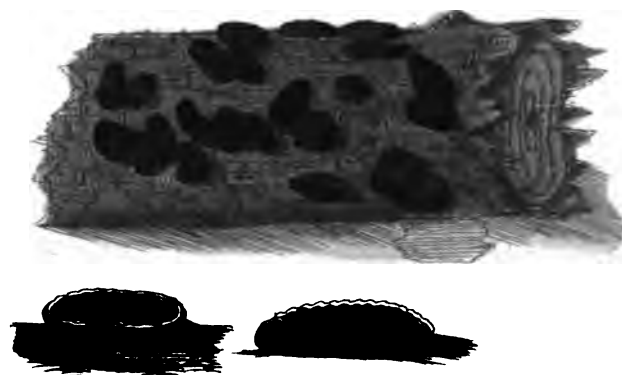
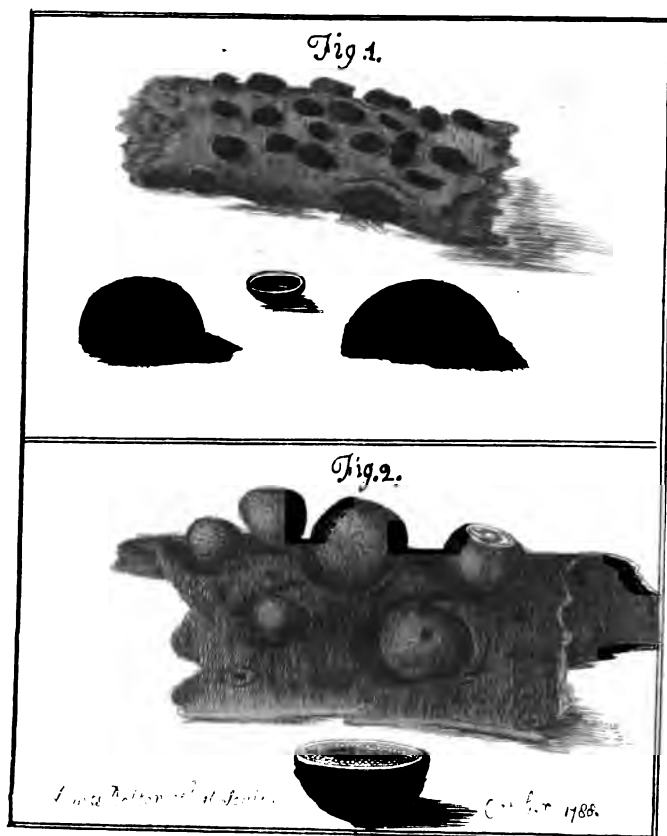


Fig: 1.





SPHÆRIA *acaulis aggregatis tuberculosis fuscis, sphærula con-* CLV.
coloris, Lycoperdon nigrum. Hudson, Angl. 644. Dil. tuberculosa.
Musc. t. 18, fig. 7. Mich. Gen. t. 54, ord. 11, fig. 2.
Hall. Hist. 2184.

TUBERCULOUS SPHÆRIA.

T A B. CXXIII. FIG. I.

THIS is constantly of a brown colour, both within and without; is the size of a lentil, very prominent, or much raised from the surface of the bark on which it grows, which is most commonly that of the hazel tree, when its branches are far advanced in decay. It always grows on the inner bark, and bursts the outer one to make itself way. The sphærulæ or little spheres, are arranged, at equal distance, under the bark or common cover, as is expressed in the magnified figures. The figure in the centre is a single sphærulæ, cut horizontally and magnified.—It is a common plant in woods and hedges about *Halifax*.

SPHÆRIA *acaulis aggregatis globosis cinereis, rugosis magnis.* CLVI.
rugosa.

ROUGH SPHÆRIA.

T A B. CXXIII. FIG. II.

THE size of this is from a quarter to half an inch in diameter; it is covered with a bark of a brownish ash-colour. It is rough to the touch, by reason of numerous minute tubercles with which it is covered. The substance is as hard and firm almost as dry wood; it is brown within, and the little spheres or seed vessels are too minute for the inspection of the naked eye. When a little magnified they appeared as in the lower figure.—Grows on the bark of dead and fallen elm branches. I believe this plant to be specifically distinct from the last. The specimen here figured and described grew in *Southowram, near Halifax*.

CLVII. SPHÆRIA *acaulis aggregatis oblongis fulcatis*. *Lichen scriptus*
fulcata. var B. *Lightfoot, Scot. p. 801.*

FURROWED SPHÆRIA.

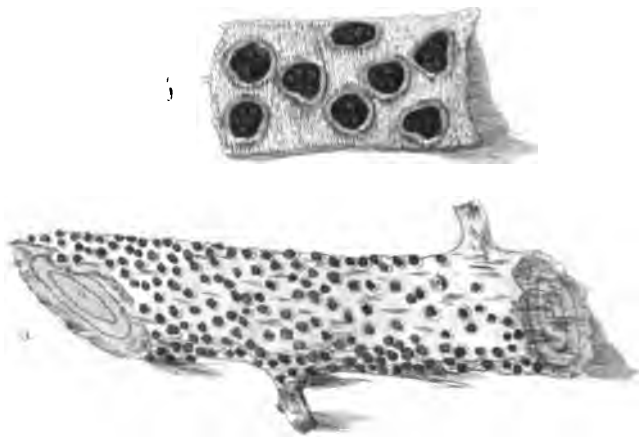
T A B. CXXIV.

THIS is a small, black, oblong tubercle, the size of a small flea; it is prominent, and has a deep furrow along the back, from end to end, by which it seems as if cloven in two, but the halves are joined together at the base. *a.* is the natural size of the plant; at *b.* it is magnified till the black punctures, which indicate the sphærulæ underneath, are visible; at *c.* it is cut horizontally, and laid open, to shew the disposition of the sphærulæ, or little spherical seed vessels; at *d.* it is cut perpendicularly for the same purpose. The plant, under the double magnifier, appeared like a bivalve shell, when closed and seen in front.

Grows about *Halifax*, in several places, on twigs and branches of ash trees, when in decay.

Possibly the *Lichens, scriptus* and *hebraicus*, may belong to this Genus; but of this I have not made sufficient observation, nor whether these two are only varieties of the above.





SPHÆRIA *acaulis*, *aggregata subtomentosa*. *An sphæria to-* CLVIII.
montosa. *Relhan, Flor. App. alt. p. 31, No. 1107?* *obduſa.*

COVERED SPHÆRIA.

T A B. CXXV.

THE whole cluster is about the size of a brown mustard seed, and adheres, by its base, to the surface of the inner bark of dead branches, forcing its way through the outer. While young it is covered with a soft downy or cottony matter, of a dead white colour; which cover falls off in the progress of growth, and leaves the aggregate naked, and of a shining black. The plants are figured of their natural size at *a*.—at *b*. and *c*. they are magnified in two different degrees, to shew their appearance while surrounded, at the base, with the outer bark of the wood on which they grow; at *d*. the outer bark is removed, to give a distinct side view of the whole aggregate; this is still further magnified:—at *e*. a single Sphæria is further magnified, to shew the disposition of the sphærulæ or seed vessels. These sphærulæ, when I opened them, were some of them full of a pale coloured gelly, others had a black dust, and some seemed to be empty.

I found it growing in great plenty, on fallen decaying branches of several kinds of trees, in *Bradley-Woods*, near *Elland*, in February, 1789.

T

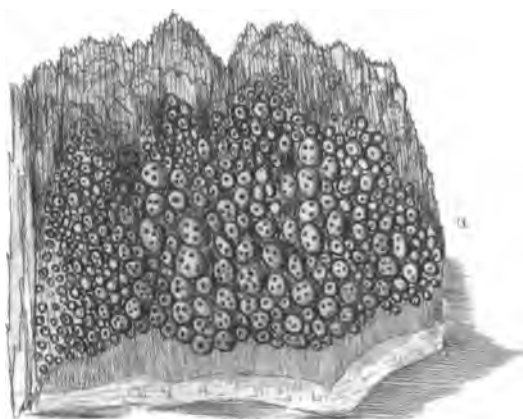
- CLIX. SPHÆRIA *aggregata, subcomposita irregularis perforata*
pertusa. virescens. Weigel, *Obs. Bot.* p. 46, No. 9, t. 2, fig. 15.
 Weber, *Spicil. Gott.* p. 282. No. 298. *Lichen pertusus.*
 Linn. *Mentiff. Pl. Anno 1767*, p. 131, No. 82. Dillen.
Musc. t. 18, fig. 9. Mich. *Gen.* t. 52, ord. 32, H, I, K,
 L, M. Relhan, *Flor.* 421, No. 838. Hudson *Angl.* 525,
 11. Lightfoot, *Scot.* 802, 5. *Sphaeria pertusa.* Hagen,
Hist. Lichen. Pruff. p. XLIX.

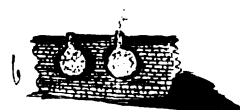
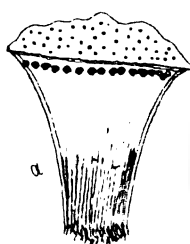
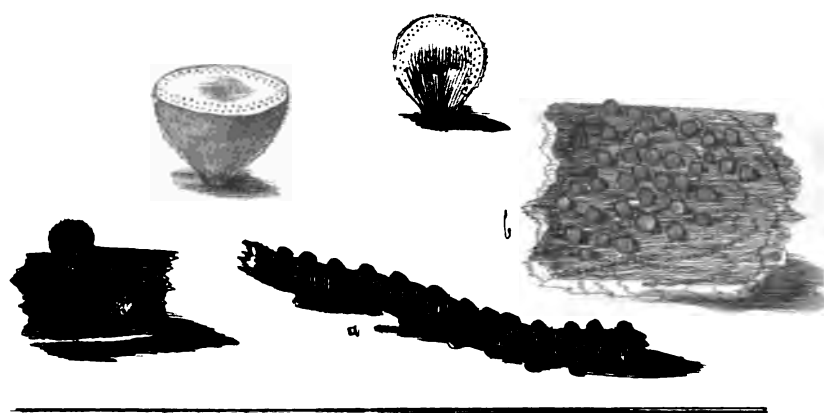
PIERCED SPHÆRIA.

T A B. CXXVI.

THIS grows on the barks of ash trees, in patches of various figures, and, according to its age, from an inch to a foot in diameter. It is, whilst young and growing, of a greenish ash colour; when old or dried, of a pale dusky ash colour. It consists of numerous Sphæria close thrust together, the largest occupying the middle part; their size gradually diminishing towards the margin, on every side. Each separate Sphæria, of the general aggregate, contains from two to six sphærulæ, at first filled with a white gelly, afterwards with black seeds; and after the discharge of these seeds, the empty vessels remain open for many months. The plant is figured of its natural size, as it grew on a piece of ash bark, at *a*. A few separate Sphæria, before the opening of the seed vessels, are magnified at *b*. A single one is cut horizontally, and laid open at *c*. to shew the white substance of the plant within, and the disposition of the black sphærulæ, as they lie imbedded in it. At *c*. a single one is magnified, to shew the open vessels as they abide after the discharge of their contents.—*d*. is a vertical section, when the seeds are ready to be discharged.

Grows abundantly, on the barks of living ash trees, in the neighbourhood of *Halifax*.





SPHÆRIA *acaulis, subglobosa solitaria glabra. Tramella purpurea. Sp. Pl. 1628. Dill. Musc. t. 18, fig. 2. Mich. Gen. t. 95, fig. 3. Sphaeria convexa miniata hirsuta. Hall. Hist. 2189.* CLX. *miniata.*

PINK-COLOURED SPHÆRIA.

T A B. CXXVII. FIG. I.

THIS is the size of a white mustard seed, of a spherical figure, and of a colour between red and pink. It is at first smooth, hard, and solid; as it advances, a thin filmy or downy epidermis is thrown off, under which very minute sphaerulae may sometimes be found; after the discharge of this covering, the plant remains for some time with a downy surface. It is represented of its natural size at *a.* and *b.* The other figures shew it magnified in two degrees, and cut in two directions.—It is a very common plant on decaying bark, about *Halifax*.

*** stalked.

SPHÆRIA *nivea, plana, punctis nigricantibus. Hall. Hist. 2184. Peziza turbinata truncata, disco punctata. Lin. Sp. Pl. 1650. Relhan, Flor. 464, No. 964. Hudson, Angl. 634, 4. Lightfoot, Scot. 1050, 4.* CLXI. *truncata.*

LOPPED SPHÆRIA.

T A B. CXXVII. FIG. II.

THIS Sphaeria is top-shaped, lopped off above where it is white, and marked with numerous small black punctures. The stem or rising part is black; the substance of the plant within is white; under each of the black punctures on the surface is lodged a black sphaerulae. The section at *a.* shews the disposition of these sphaerulae. *b.* is a small particle more highly magnified, to shew the manner in which the seeds are discharged. The substance of the whole is dry, tough, and elastic.—Grows on dry dunghills, about *Halifax*, in Winter and Spring.

T 2

CLXII. SPHÆRIA *clavata integerrima rubra, capite tuberculato.*
Clavaria militaris. Sp. Pl. 1652. *Clavaria indivisa*
flavescens plicata. Var. B. Hall. Hist. 2024. Hudson,
Angl. 634, 2.

MILITARY SPHÆRIA.

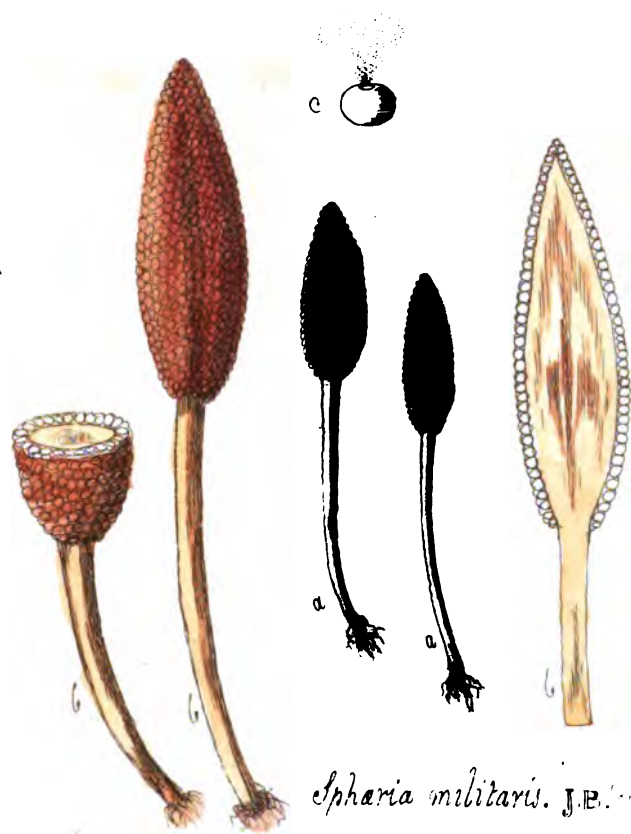
T A B. CXXVIII.

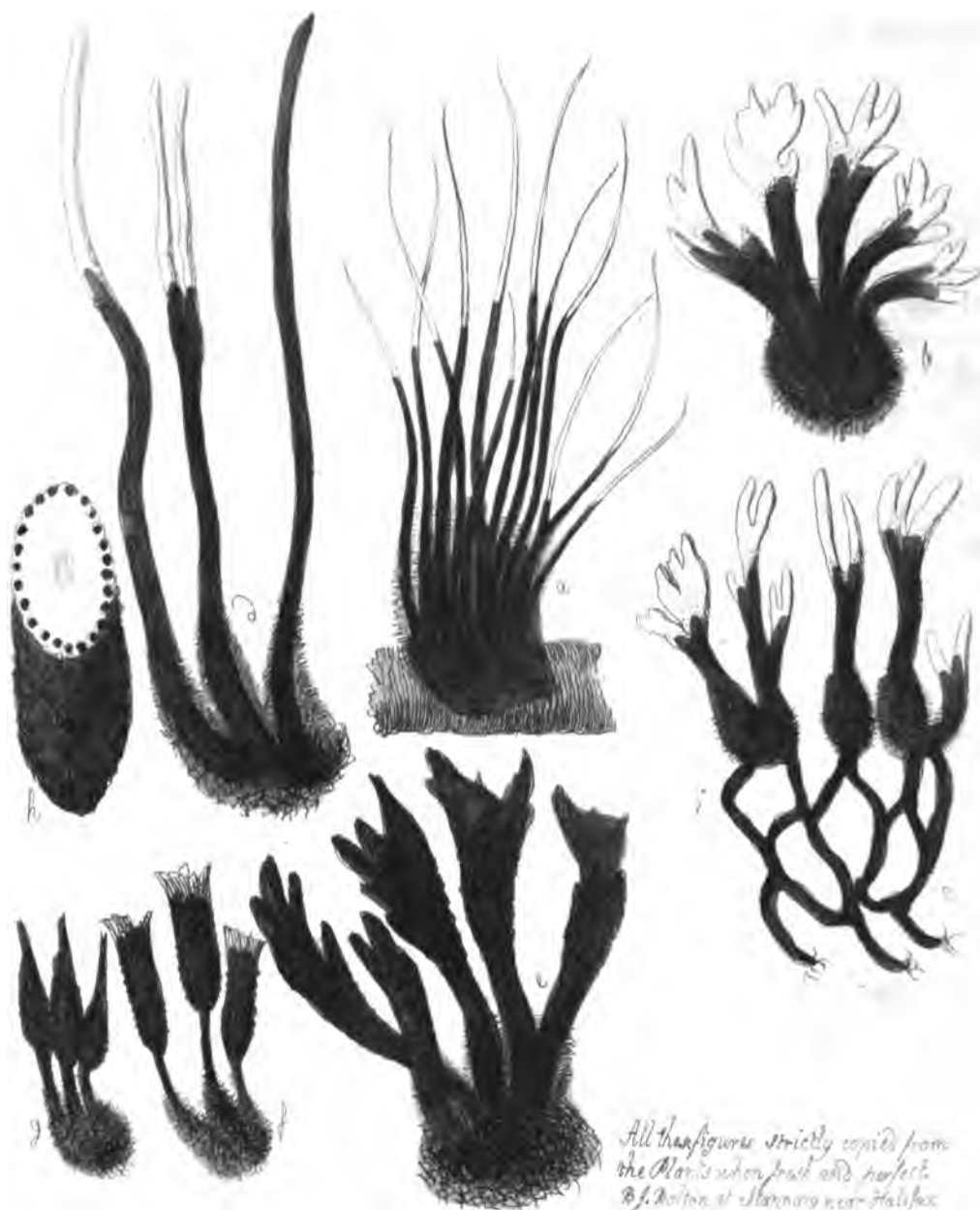
THE colour of the head or club, is a bright orange or golden scarlet. The little sphaerulae, which are lodged under the rind or common cover, cause small prominences on the surface of the club. While the plant is young, these small globular vessels are full of a white transparent gelly, which afterwards changes to a dry powder the seed of the plant, and which is discharged through a small pore or aperture, in the external side of the sphaerulae.

The internal substance of the club and stem is soft, of a fungous substance, of a golden colour, and is easily divided into small shining filaments.

The root is an hard tubercle at the base of the stem, and is furnished with brown fibres.

Grows in this neighbourhood, in garden ground, under the shadow of plants, &c. but is rare.





*All the figures strictly copied from
the plates when first and perfect.
R. J. Rolan at St. John's near Halifax
1871. A*

SPHÆRIA *subramosa*, *apicibus albidis*, *basis nigris birsutis*. CLXIII.
Clavaria digitata. Sp. Pl. 1652. Vel *Clavaria hypoxylon*,
ib. 1652. Hudson, *Angl.* 639. Schæf. *Fung.* t. 328. Var. *digitata*.
Lightfoot, Scot. 1058, 1059, 5, 6. *Sphaeria digitata*.
Relban, Flor. p. 437, 988, et *ib.* 989.

FINGERED SPHÆRIA.

T A B. CXXIX.

THIS *Sphaeria* is a year or upwards, from its springing up to its decay. In September and October the shoots appear, they are then covered with a white farinaceous powder, on the upper part; they are of various forms, sometimes plain and simple, tapering to a long extended point, growing in bundles, as at *a*. sometimes they are simple or forked, and rise to the height of five inches, obtuse at the top, and nearly of equal thickness throughout, as at *d*. sometimes they are two or three inches high, the summits compressed, palmated, digitated, tridentated, or forked; in all these states they are covered, near the top, with the above-mentioned white powder, which continues upon them from October till March, and no *sphaerulae* are in that space of time discoverable. In this state it is the *Clavaria hypoxylon* of the Botanists.

In April and May the white powder turns grey and vanishes, the extremities of the upper divisions also wither and decay: The *sphaerulae* are now formed, and they continue to grow till after Midsummer; and, being lodged near the surface, have the appearance of tubercles on the outside of the plant, as at *e. f. g*. One of these is obliquely cut off, and magnified at *b*. to shew the arrangement of the black *sphaerulae*, as they are lodged in the tough, dry, white, elastic substance of the plant. In this state it makes the *Clavaria digitata* of the *Floristæ*; soon after which it sheds the seed and perishes.

In both states it is covered with stiff black hairs near the base; the root sometimes insinuates itself between the bark and the wood, as at *c*.

I have observed the plant in all these states, for a succession of years.—Is not the white powder a Male Flower?

- CLXIV. SPHÆRIA *stipitata*, stipite flavo cylindrico, pileo ovato castaneo punctato subgeminato, radix tubroso bivolvato intern nigro. *Flora agarici-formia.* *Danica*, fasc. 9, p. 8, t. 540.

AGARIC SPHÆRIA.

T A B. CXXX.

OF this singular, curious, and very rare plant, on the fifteenth of October, 1786, I gathered the five single specimens, which are exactly figured on the upper part of plate 130. I brought them, shut up in a tin box, amongst other *Fungi*, and on opening the box the following morning, I observed a small gelatinous drop in every pore, on the surface of the pileus;—when, on exposing them to the warm sunshine in my window, in the space of an hour the gelatinous particles dried up, and a white powder was copiously discharged on a piece of blue paper, upon which the plant was laid.

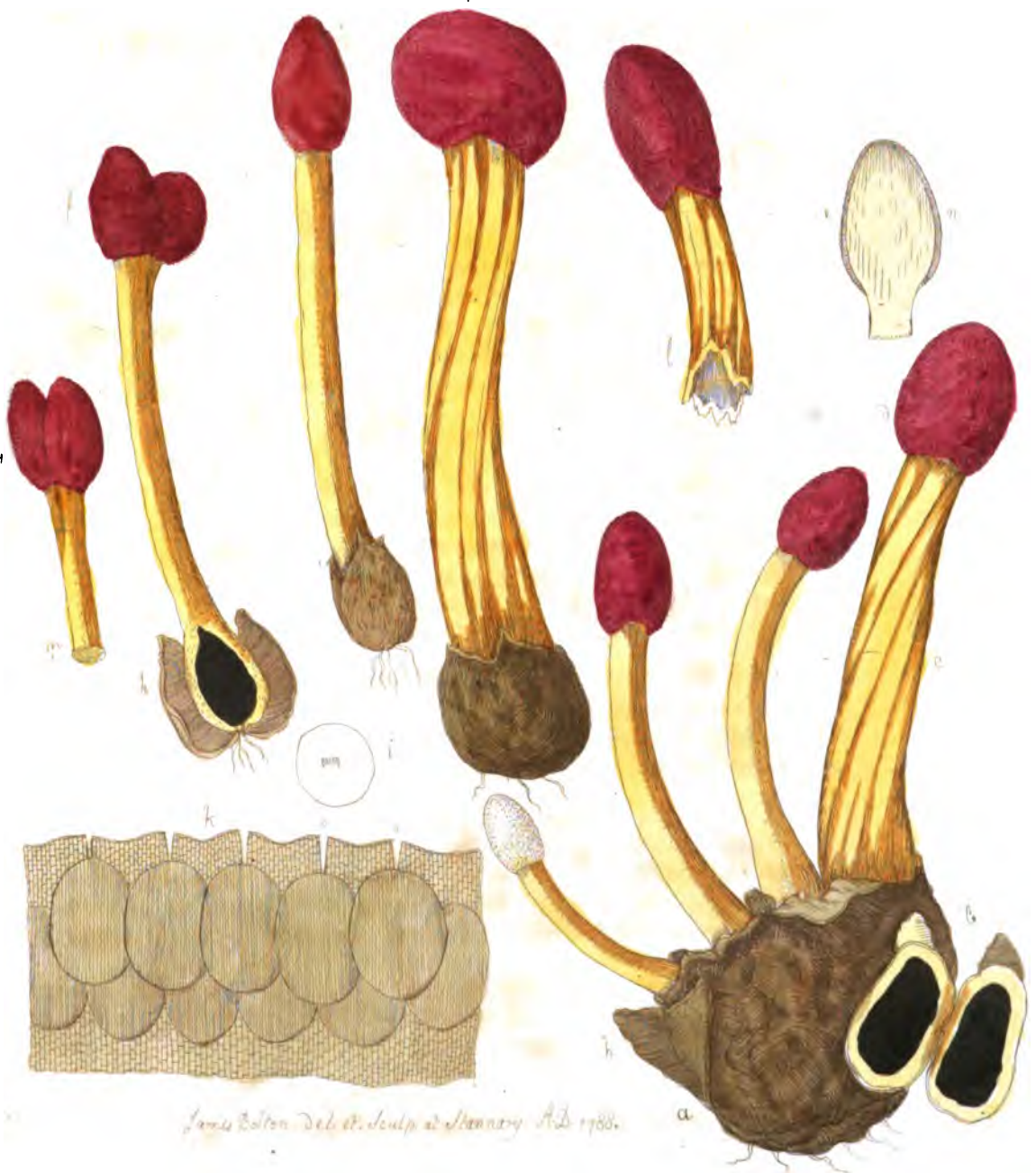
On the twenty-eighth of October, 1787, I saw the plant again, as it is figured on the plate, at *a. b. b.* It did not, in lying by me a whole day, make any kind of exudation from the pores; but the second day, on being immersed in clear spirit of wine, the gelatinous particles immediately began to exude; in a few days the plant contracted very much in size, and afterwards the black turfy substance fouled the spirit, till it now appears quite black, and the plant has lost three fourths of its original bulk.

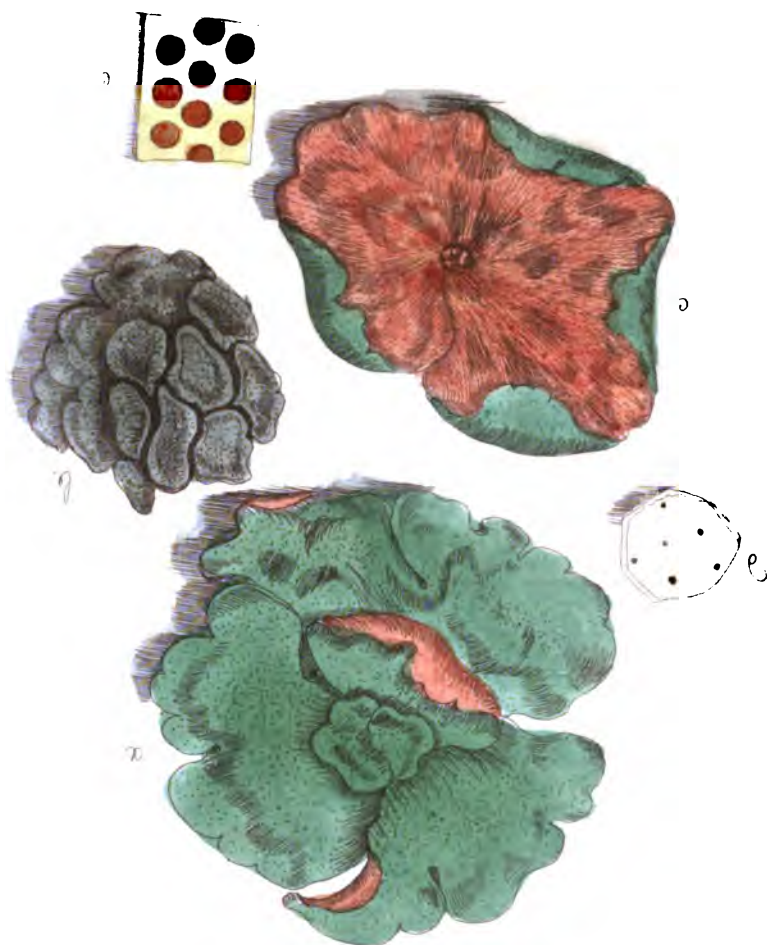
A section of the pileus, to shew the disposition of the sphærulæ (or rather ovæ, for they are oval), is seen at *c.* A particle, cut off at *n.* is very highly magnified at *k.*—*o. o.* are pores on the surface, which communicate with the ovæ within.

The root is black, and of a turfy, spongy substance; it is surrounded with a thick volva, which is of the same substance with, and a continuation of, the stem. This volva is surrounded by another, which is dry, husky, and of a brownish green or greenish brown. This outer volva is attached to the inner one, by a few radical fibres.

The stem while young is solid and smooth, when old becomes fistular, furrowed, and a little twined: In both states it is soft, pliable, and easily splits in yellow shining filaments. It turns black and rots in decay.

Grows in *Ramsden-Wood*, below *Higbfield*, near *Halifax*.





**** leafy.

CLXV.

foliacea.

SPHÆRIA *umbilicata punctata supra sub-virida infra fulva.*
Lichen miniatus. Sp. Pl. 1617. Dill. Musc. t. 30, fig.
 127, 128. Mich. Gen. t. 54, ord. 36, fig. 1, 2, C, D, E, F.
Flora Danica, t. 532, fig. 2. Hudson, Angl. 549, No. 79.
Lightfoot, p. 857, No. 66.

LEAFY SPHÆRIA.

T A B. CXXXI.

THIS Sphaeria, from one central root or umbelical cord, spreads out various leaves, of an hard, tough, coriaceous substance, and very different in size, form, and colour. When it grows on rocks, in a low, moist, and shady situation, they are extended to a considerable breadth; the margins lobed, waved, gashed in, and sometimes other smaller ones grow upon them; and in rainy weather, or when immersed in water, the surface is of a strong dusky green, the under side of a fulvous red: In this state it is expressed on the plate at *a*. When the plant is dry the green changes to a brownish ash colour, the marginal lobes roll backward, but the colour of the under side changes not: In this state it is figured at *c*.

On very dry rocks, which are exposed to much sun and air, the leaves are short, thick, hard, of a dusky olive colour, numerous, and crowded together; thus it is seen at *b*. In all these states, the surface is distinguished with numerous very minute pores, which are seen, a little magnified, at *d*. These pores are the mouths or outlets of the sphaerulae, which are lodged within the substance of the leaf. These sphaerulae are truly globular, of a beautiful glossy orange colour; containing when young a pale coloured gelly. The internal substance of the leaf is of a bright beautiful green. A particle is magnified at *e*. to shew the sphaerulae.

Grows upon calcareous rocks, in Craven.

A N

HISTORY OF FUNGUSSES, GROWING about HALIFAX.

G E N U S X I.
M U C O R.

- CLXVI. *MUCOR capsula globosa.* Sp. Pl. 1655. Mich. Gen. t. 95, fig. 1. Flora. Dan. t. 467, fig. 4. Hudson Angl. 646.
mucido.

G R E Y M O U L D.
T A B. CXXXII. F I G. I.

THIS consists of a single grey filament, crowned with a small globular grain, at first white and pellucid; afterwards becomes grey and opaque; at last bursts, like a *Lycoperdon*, and ejects numerous seeds.—Grows on putrid fruits, &c. It is magnified at *a.* and ejecting the seeds at *b.*

- CLXVII. *MUCOR stipite ramofo spicis ternis.* Sp. Pl. 1656. Hudson Angl. 647. Mich. Gen. t. 91, fig. 3, 4.
capitosus.

T E R N A T E M O U L D.
T A B. CXXXII. F I G. II.

THIS grows on putrid vegetables, in woods. It consists of a filament, divided in a ternate order; the extreme divisions resembling a string of minute, white, pellucid necklaces, which, when at maturity, burst, and discharge oval seeds. Magnified it appears as at *b.*

- CLXVIII. *MUCOR racemosus.* Botrytis spicata grisea, seminibus rotundis. Mich. Gen. p. 212, t. 91, fig. 4.
botrytis.

G R A P E M O U L D.
T A B. CXXXII. F I G. III.

THIS is a filament, divided and subdivided in an irregular manner; the extremities of the divisions sustaining each a grape-like cluster of globular seed vessels. It grew between the imbricated lobes of a large decaying plant of *Boletus versicolor*. Magnified it appears as at *a. b.*

- CLXIX. *MUCOR stipitatus fugax, stipite capillacio, capitulo spærico rorido nigro punctulo in summitate notato.* Relban Flor. Appen. planta ultima. Pluck, t. 116, fig. 7. Ray Syn. p. 13, No. 13.
roridus.

E Y E D M O U L D.
T A B. CXXXII. F I G. IV.

THIS grows in clusters, and consists of a single, upright, pellucid filament, four lines high. It is pellucid and white, sustaining a small globular head, like a minute pearly drop, with a black spot on its upper part; which give the globe the resemblance of an eye in miniature.—Grows on horse-dung, in cloudy mornings; perishes when the sun shines upon it. Found in August and September, in fields about Halifax.

Fig. 2

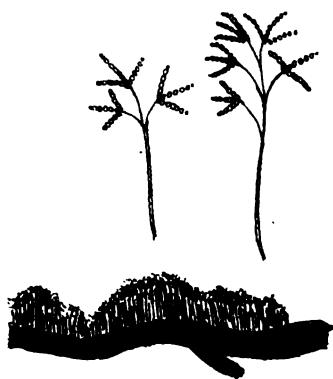


Fig. 1.

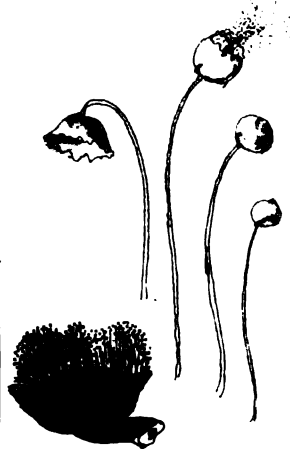


Fig. 4

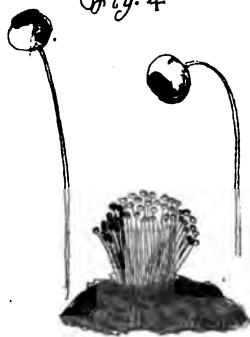


Fig. 3.





MUCOR *stipitatus fugex, stipite superno ventricoso pellucido rorrido* CLXX.
capitula subrotundo elastico nigro, Dickson, Crypt. fasc. 1, p. 25, urceolatus.
t. 3, fig. 1. Hydrogera crystallina. Wiggers Fl. Holsat. p. 100.
Relban, Flor. Append. 35, No. 1062.

PITCHER-SHAPED MUCOR.

T A B. CXXXIII. FIG. I.

THIS is about two lines in height; the stalk or ascending part is of a dusky yellowish hue, and contracted near the base, but towards the top is swelled, so as to give the stem a lengthened urn shape. This upper part is pellucid, and seems as if filled with dew. The head is globular, sometimes a little depressed, sometimes compressed; it is of a dark shining olive colour, surrounded with a membrane at first, but which breaks, and the head afterwards is of a greenish hue, and appears downy. The seeds adhere to elastic filaments, as at *a*. The natural size of the plant is seen at *b*. The head uncovered at *d*. covered at *c*. A downright section at *e*. The plant more highly magnified at *f*.

Found in horses or cows' dung, early in the morning. This figure and description was taken in October, 1784.

MUCOR *sessilis subalbidis magnis, pulvere fuscis. Lycogala griseum* CLXXI.
majus. Mich. Gen. t. 95, fig. 1. Schæf. Fung. t. 195. lycogalus.

GELLY MUCOR.

T A B. CXXXIII. FIG. II.

THE substance of the plant, while immature, is like a stiff gelly; it is of a brown colour, and enclosed in a brown soft bag or cover. It adheres to decaying wood, by a central umbilicus, but has no apparent root. As the plant advances in growth it becomes more convex, approaching to a globular figure, but compressed at the base; the cover becomes more firm and dry, and changes to a fair white, is smooth to the eye, but has a gentle asperity to the touch. When full grown it breaks, in various irregular gashes, and discharges brown globular seeds adhering to elastic filaments. *a*. the young plant; *b*. the perfect one; *c*. is a specimen cut perpendicularly; *d*. the seeds.

This grew in a brew-house in *Halifax*, on an old beam, over the pan where the worts are boiled, April 21, 1788.

U

CLXXII. *MUCOR undulosus flavus*. *Sp. Pl.* 1656. *Schæf. Fung.* t. 194.
septicus. *Mich. Gen.* t. 96, fig. 2. *Flor. Dan.* 778. *Relban, Flor.*
p. 475. *No.* 994. *Hall. Hist.* 2133. *Hudson, Angl.* 647.
Lightfoot, Scot. 1073.

FROTHY MOULD.

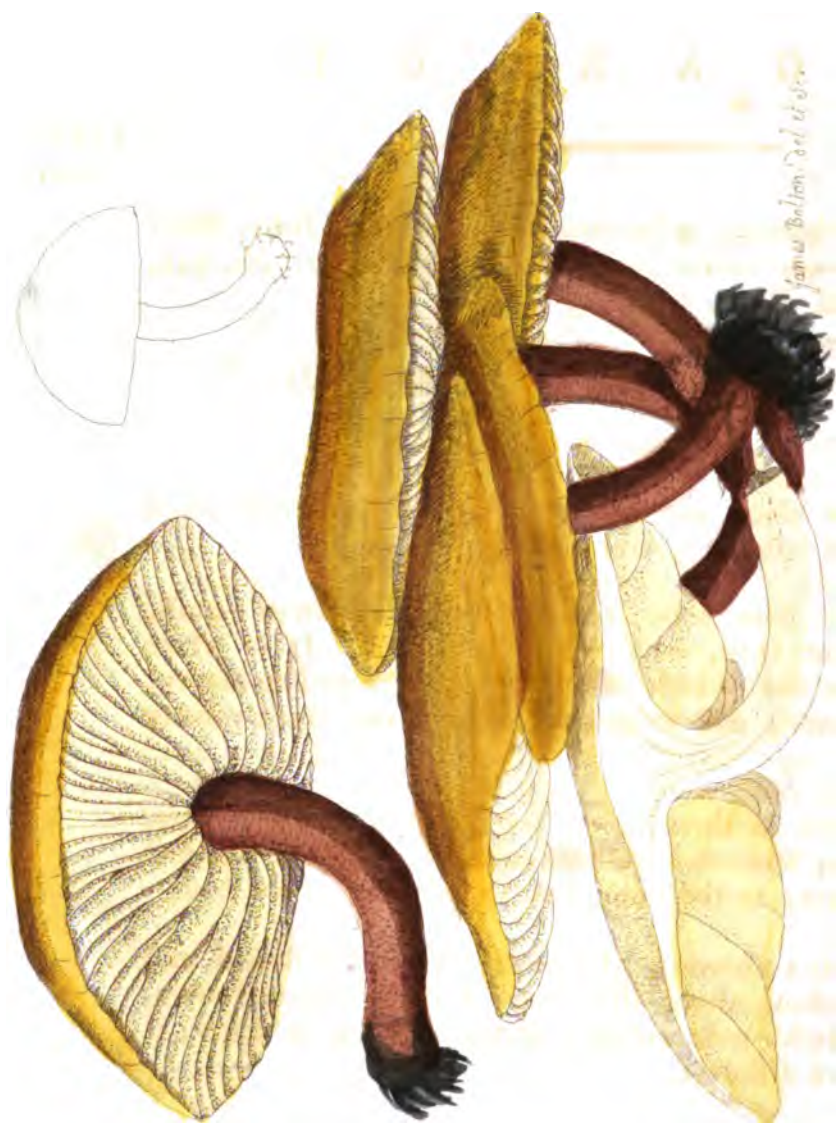
T A B. CXXXIV.

THIS is found in patches, of various shapes and various sizes; sometimes as large as the palm of a man's hand, the surface is irregular, the margin swelled out, here and there, into uneven and unequal lobes. I have seen smaller specimens which are white, and most frequently of an oblong figure, as is expressed on the upper blade of grass in the plate. These, I suppose, are the plant in its first stage; when further grown, it is of a yellow or golden colour. In both states it is of a frothy substance, and looks not unlike Barm or Yeast; touched it dissolves in a cream-like frothy substance. In the space of a day or two it dries, and changes to a black sooty powder, replete with globular seeds, adhering to black, downy, elastic filaments.

Grows in woods, on grass and other herbage near the ground, and appears not like a plant, but like matter that had been accidentally spilt there. This specimen grew on withered grass, and the low dying branch of an hedge rose, which were entangled together, in *Woodhouse-Wood*, near *Halifax*, August 3, 1782.



A P P E N D I X:
CONTAINING SUCH
PLANTS of the FUNGI ORDER,
AS HAVE BEEN
DISCOVERED since the PUBLICATION
OF THE
F O R M E R V O L U M E S.



A P P E N D I X.

A G A R I C I.

CLXXIII.

velutipes.

AGARICUS *stipitatus, fasciculosus pileo planiusculo fulvo, stipite nudo tenerrime villosa fuliginosa. Relban, Flor. No. 942, 456. Vaill. Paris, t. 12, fig. 8, 9.*

VELVET-STALKED AGARIC.

T A B. CXXXV.

THE root is black and hard; it is furnished with black fibres, and sustains several plants.

The stem is firm, solid, the thickness of a swan's quill, often crooked or bent, and two inches high. It is white within, but on the outside of a very dark chocolate brown, inclining to black; and is covered with a very short velvety down.

The gills are in three series, few, very broad and large, pellucid, tough, and of a yellow colour. Those of the first series not adhering to the stem, but rounded off at the base.

The pileus is cushioned, glutinous; the rim deflected and acute. The colour about the centre a strong orange brown, changing to a dusky gold colour; at the margin, in decay, it turns black, and dissolves.

The specimens here figured and described, grew on the stumps of fallen trees in *Southowram*, in February, 1789.

CLXXIV. AGARICUS *ex uno pede multiplex, pileo defuper ex spadiceo fusco-pallidus. flavescente. Mich. Gen. t. 81, fig. 2.*

PALE - BROWN AGARIC.

T A B. CXXXVI.

THE root is swollen, spongy, of a soft grey brown on the outside, and white within. It emits many brown capillary fibres, and frequently sustains several plants.

The stem is five inches high, of a pale brown-grey colour on the outside. It consists of a bark or rind, half a line in thickness; which is filled with a spongy or cottony matter, of a pure white. It is largest at the base, from whence it diminishes gradually upwards.

The curtain is white, of a soft downy substance, and soon vanishes. It originates in a thick soft annulus, which abides on the stem till the decay of the plant.

The gills are arranged in three series; they are narrow, arched, thin, flexible, and white.

The pileus while young is convex, afterwards nearly flat; the surface vellumy, but with a few small scales at the summit, in some of the younger plants; the rim deflected; the colour a pale dusky brown; the flesh is white, soft, and spongy.

Grows in woods about *Halifax*, but is rare.





AGARICUS *stipitatus, pileo margine albido, apicibus nigris, stipite fistuloso basi plumoso.* CLXXXV.
atro-albus.

BLACK AND WHITE AGARIC.

T A B. CXXXVII.

THE first appearance of this Agaric, is a tuft or little plume of white feathery bodies, of a very light and delicate substance, issuing from a round, fibrous, brown root. From the centre of this plume arise the pileus and stem; the last of which is thereby surrounded, at its base, till the decay of the plant.

The stem is fistular, round, and smooth; at first of a dusky hue, approaching to black; as it advances in growth the upper part becomes gradually paler; and in a full grown plant the upper part is white. The height is about three inches; the substance easily splits in filaments.

The gills are arranged in three series; those of the third often very small, and sometimes deficient in number. They are white, flexible, arched, and those of the first series are inserted into the top of the stem, by a broad obtuse claw.

The pileus at first is of an oblong form, at last becomes bell-shaped. In the first stage it is black, except the margin, which is white; and, in the advance of growth, the white of the margin is extended up to the middle of the pileus, the upper part remaining black to the last.

Grows amongst moss about the roots of trees, in woods about *Halifax*, but rarely.

B O L E T I.

CLXXVI. BOLETUS.

*Agaricus ramosus cornu veniferi referens. Blacks. Spec. Bot. p. 2, t. 1. Clavaria
venigiferinus. hypoxylon var. B. Hudson, Angl. 639.*

RAIN - DEER BOLETUS.

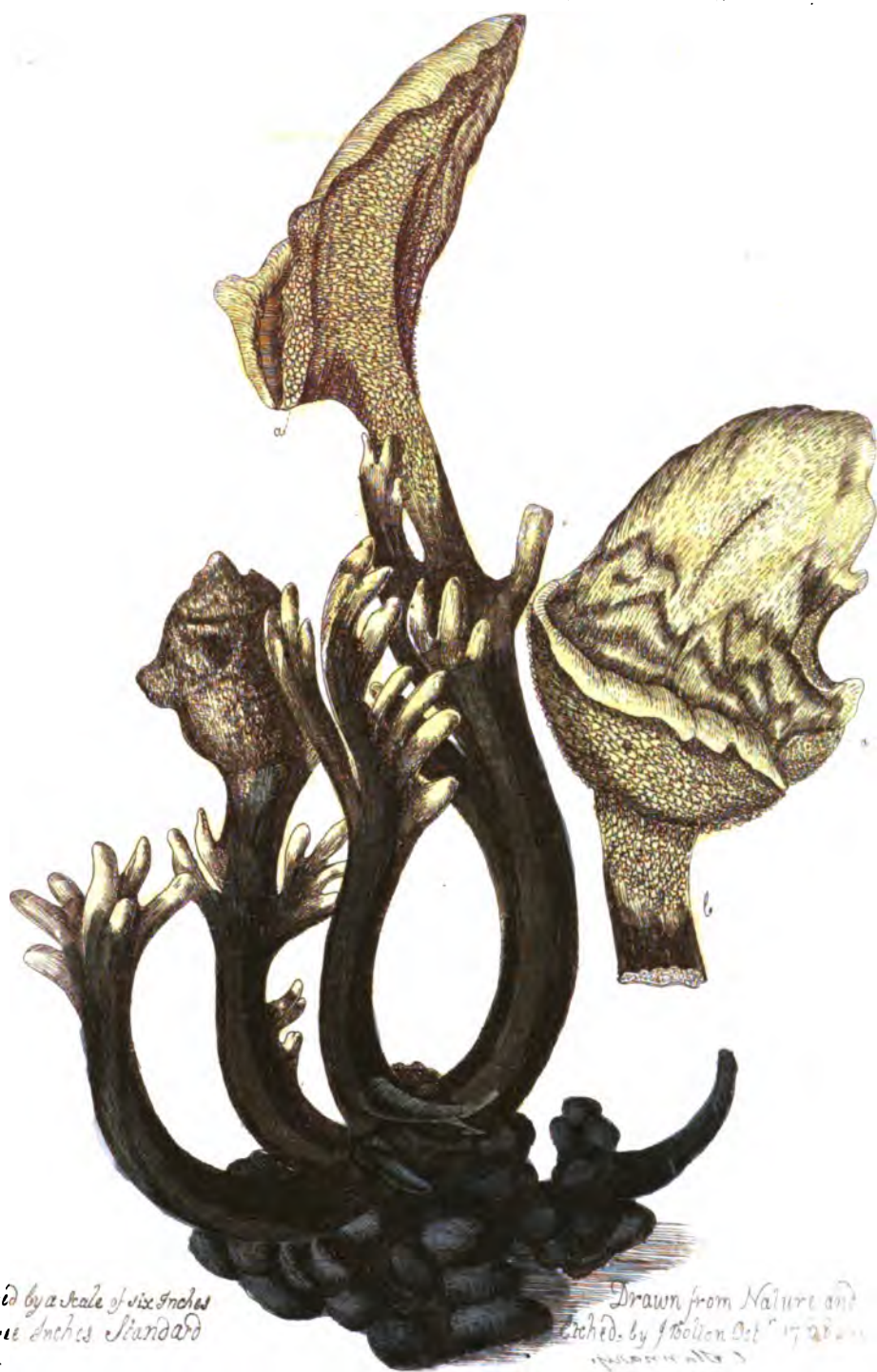
T A B. CXXXVIII.

IT has a base or pedestal, consisting of brown fungous tubercles, the size of hazel nuts, adhering together by their sides, and forming an irregular knotty surface on the upper side; on the under side, where it adhered to the wood, it is smooth and a little hollow. The general shape of the base is roundish; but on one side is an additional piece of the same substance, adhering to the rest by a narrow neck, producing a single horn, which is curved, and throughout of the general sooty colour of the plant.

From near the centre of the base arises, singly, the principal stem; it emits near its bottom; a small horn growing horizontally, but curving upwards at the point. The stem above emits two branches, which diverge very little from its direction, as it were embracing it their whole length. These branches terminate in fingered divisions, which are of a pale ochre colour. At the height where these branches terminate, the stem emits a single compressed horn, an inch long, the upper part ochre coloured. About three inches above this, the stem begins to spread out, and forms itself into a large open expansion, rudely resembling a spatha of the *Calla Indica*, but is broader at both extremities; the margins are rolled back, and gently waved and laciniated; on the upper side, near the middle of the expansion, is a projecting line, which seems to consist of a wrinkled membrane, hard and dry; on the under side, all round, the margin is of a pale ochre colour, and full of angular pores, which have no proper tubes; all the rest of the under side is beset with tubes, placed in an oblique direction, their mouths torn and laciniated, but their lower parts cylindrical. These tubes are largest in the centre, diminishing gradually towards each side, and they run a little way down the stem, below the base of the spatha, the whole of which is of a pale yellow or ochre colour, except a few clouds and shades of a dusky brown, on the upper surface. A side view is seen at *a*. a front view at *b*.

Besides this branch, the base produces three others; one, which is the innermost, is nearly upright; the other two grow at first horizontally, and then curve gradually upwards. The first of these has three principal divisions, each of which is subdivided into three or four white fingers. Another of the three emits branches from its sides, and sustains, at top, a lump or ball, of a fungous substance, rudely resembling a human head; and in the direction that I placed the plant, to take its figure, this head was in profile: On the neck is a yellow triangular spot. The other branch is the shortest, and terminates in seven white fingers.

The colour of the bark is a dark fuscous brown, with a cast of soot; the surface in some parts marked with longitudinal furrows, in others reticulated with rising wrinkles; the internal substance white, dry, and elastic. The height of the plant, when fresh, near fourteen inches; my figure is reduced by a scale of twelve inches, on six inches standard. A sight of this curious Fungus was procured me by Mr. THORSBY, of Leeds. It grew on an old log of wood in a cellar, in that town. A. D. 1788.



*Reduced by a scale of six inches
On three inches standard*

*Drawn from Nature and
Etched by J. Bolton Oct 17 20 1841*

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AN
APPENDIX OR SUPPLEMENT
TO THE
HISTORY
OF
FUNGUSES,
GROWING ABOUT
HALIFAX:

BY WHICH
THE WORK IS COMPLETED IN FOUR VOLUMES.

CONTAINING
ONE HUNDRED AND EIGHTY-TWO COPPER-PLATES;

ON WHICH ARE ENGRAVED

Two Hundred and Thirty-one Species of Fungusses,

EXHIBITED IN ABOUT

NINE HUNDRED FIGURES;

All Drawn, Engraved, and Coloured by the Author.

With a particular DESCRIPTION of each SPECIES, in all its Stages,

From the first Appearance to the utter Decay of the Plant; with the Time when they were gathered; the Soil
and Situation in which they grew; their Duration; and the particular Places
mentioned, where all the New or Rare Species were found.

The Whole being a plain Recital of FACTS, the Result of more than Twenty Years Observation.

By JAMES BOLTON,
Member of the Nat. Hist. Society, at EDINBURGH.

N A T U R A S E M P E R E A D E M.

HUDDERSFIELD:

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M,DCC,XCI.

INTRODUCTION

C O N T I N U E D.

IT cannot be improper to add an observation or two, concerning some of the plants published in the former parts of this work, as they tend to convey a clearer understanding of the respective species.

Tab. 14, *Agaricus ferratis*. The present year, 1791, this plant grows in abundance in the plantations about *Fixby-Hall*; where I have examined it in all its stages. The pileus, which is at first smooth and of a deep crimson colour, grows to a large size; and, as it increases and expands, the crimson surface does not remain entire and expand with it, but breaks into innumerable small lines or points, which retain their colour, and appear like so many touches of a pencil, on the surface of the pileus, now become yellow. The plant abides for a week or more, grows large and tall, and the pileus at last becomes soft and flabby; in which state it is well figured by SCHOEFFER, Tab. 84.

Tab. 33. *Agaricus plumosus*. Since the publication of my first volume, I have found this plant to be furnished with a curtain, which is white and very delicate; it breaks and vanishes in the infancy of the plant, and by that means escaped my notice when I drew the figure.

Tab. 51. Fig. 2. *Agaricus croceus*. I have lately seen this plant in a more perfect state than my figure represents. The pileus three inches in diameter, of a strong saffron colour; it turns brown in decay.

Tab. 53. *Agaricus ciliaris*. Since the publication of this, I find that what I took for hairs on the margin were not such, for, on examining other specimens afterwards, under the same appearance, I found, by means of a spy-glass, that the ciliation did not consist of hairs, but of the black seeds of the plant, which had slid down from the gills, by means of a glutin, in which they were suspended, in an even line, all round the extreme verge of the pileus. I was led to this discovery, by finding the plant frequently without the ciliation, and but very rarely with it.

Tab. 45. *Agaricus striatus*. I have reasons, drawn from observations lately made, to suppose that the small plant, with grains on the surface, figured on this plate, is a proper species, distinct from the *Agaricus striatus*.

Tab. 72. *Boletus albus*. Since the drawing of that figure, I find that the red colour on the base, and the curling of the margin, are circumstances almost peculiar to the young plant; for at its full growth the red nearly vanishes, and, as the margin extends, it becomes more smooth and entire. The pores are sometimes gently tinged with red. I make no doubt of its being the same species with BULLIARD's *Boletus salicinus*. Pl. 433. Fig. 1.

Tab. 122. *Sphæria bombardica*. In the place where this plant takes root, it continues for a succession of seasons. The first winter forms a single stratum, succeeding seasons form others upon that, till it becomes aggregate. In the first state, I described and figured it; I believe that LIGHTFOOT and RELHAN saw it in the last.

Tab. 129. *Sphæria digitata*. Some of my botanical acquaintance do not agree with me in supposing the *Sphæria digitata* and *hypoxylon* to be varieties of the same species; and I have received specimens of a shape different from any of those represented on my plate. The plant is a perfect proteus; and I have not been able, after the strictest inquiry, to discover any certain criterion of distinction between the two supposed species. Consult SCHOEFFER, Tab. 328. and BULLIARD, Pl. 440. Fig. 1. Both
which

which figures, I think, are in a middle state partaking equally of the one and of the other.

I would be understood at all times, to suppose, that the figures given by authors, are faithful copies, drawn with proper care from the object present, and in a fresh state at the time of drawing:—Mine are so. I have endeavoured to imitate every object just as I found it, not daring to make any alterations for the sake of beauty or of elegance. It is not improbable but these plants may vary in point of size, smoothness, brightness of colour, &c. in proportion to the warmth and richness of the soil and climate where they grow; he who collates my figures, with the glowing tints bestowed on those of SCHOEFFER, or with the plump and rich appearance of most of those of BULLIARD, may form to himself an idea of great difference obtaining, between the cold barren mountains of *Yorkshire*, and the rich and fertile woods of *Bavaria*, or the delicious fields of *France*.

The ingenious Monsieur BULLIARD has now nearly completed that part of his elegant work, which treats of the Fungusses of *France*. It consists of about three hundred plates, with figures illuminated; in the smaller subjects several are figured on one plate; in the larger only one; both in the one and in the other, many varieties are figured on separate plates, and are considered as species.

He has formed a new *Genera Fungorum*, which, as it has not yet fallen into the hands of many of my countrymen, I hope they will not be displeased to see the order in which he has arranged them, together with the properties and characters which constitute each genus.

He divides the whole into four general orders; the first order includes all such as generate seeds within the substance of their own flesh, and contains ten genera, viz. Tuber, Reticularia, Mucor, Trichia, Sphærocarpus, Lycoperdon, Nidularia, Hypoxylon, Veriolaria, and Clathrus.

The second order contains two genera, viz. Clavaria and Tremella.

The third division or order contains also two, viz. Peziza and Phallus.

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The fourth order contains six, viz. Auricularia, Helvella, Hydnum, Fistulina, Boletus, and Agaric.

The last genus, containing the Agarics, will be treated of in a subsequent volume, not yet published.

The Mucor, the Clathrus, the Sphæria, Helvella, &c. &c. of other authors, are separated from each other, and scattered in various parts of his arrangement. He has a genus named Clathrus, which consists only of one species, viz. the Clathrus cancellatus. His seventh genus, named Nidularia, consists of, and only includes, the Peziza lentifera, striata, and lævis, of other authors. His eighteenth genus, denominated Fistulina, consists only of the Boletus hepaticus, of other writers. His second genus Reticularia, consists of the buttery or creamy mucors. The first genus, Tuber, consists of the Truffle, which is with much reason separated from the dusty puff-ball. The Sphæria of HALLER, and others are dispersed in three genera, viz. Hypxylon, Veriolaria, and Clavaria. His Helvellæ consist only of such plants as eject seeds from the under surface; his Pezizæ of such as eject seeds from their upper surface; by this rule many of the Helvellæ of other writers, will become Pezizæ, and *vice versa*. How just or how necessary these innovations may be, or how far they may or may not be supported or authenticated, by the laws of Nature or of Science, I leave to the candid examination, and inquiry, of those who have opportunity and inclination to pursue so pleasing an amusement.

He has illustrated his generic characters, by giving the figures of several of its respective species in miniature, which are beautifully engraved on two folio plates; and his microscopic observations are, in like manner, illustrated in many neat figures, on two other folio plates.

The principal characters of his genera are given in the following pages.

GENUS I. TUBER.

A subterraneous Fungus, fleshy, firm, and full at every age; nourishing its seeds inwardly, which are never emitted in dust, but when the Fungus dies, remain under ground for the propagation of the species.

GENUS

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GENUS II. *RETICULARIA*.

A Fungus, which in its first stage is soft; generally swelling with a thick juice; afterwards gradually acquiring a firmness in such a manner, that by drying it becomes friable; when broken it shews its seeds in form of powder, which are sometimes entangled in intricate fibres; sometimes intersected with small membranes like network, and sometimes also nestling in a kind of leathery cases.

GENUS III. *MUCOR*.

A small Fungus, generally of short duration; sometimes scattered; sometimes growing like a turf, consisting of very slender pedicles, single or branched, sometimes terminated with naked seeds; sometimes as with down from small clustered branches more or less diverging, every one of which consists of seeds linked together; sometimes also by a bladder-like roundish or oval Pericarp, nourishing the seeds which have no visible net.

GENUS IV. *TRICHIA*.

A small pediculous Fungus, generally sitting on a membranaceous base, which is common to many of them. The Pericarp in its first stage is turbinated, oblong, or subcylindrical, transparent, resembling a milky froth in softness and whiteness, afterwards it is opaque, pillar-shaped, formed within of thread-like net-work, without of intricate hairs, first contracted to a membrane, afterwards loose and like a lattice, it emits its seeds through apertures, with which the whole surface is covered.

GENUS V. *SPHÆROCARPUS*.

A small fleshy or leather-like Fungus, sitting on a membranaceous base, which is common to many of them, crowded together; they are pedicled or sessile. The Pericarp globular, turbinated or cylindrical, at first full, firm and opaque, afterwards irregularly torn in every part, it emits seeds from a hair-like net.

GENUS VI. *LYCOPERDON*.

A Fungus with a Pericarp, in its first state filled with a certain firm flesh, which afterwards being turned to dust composed of seeds and down,
is

is emitted through a fissure of the Pericarp, which is generally torn in the top, and in the progress of age, leaves the membranaceous bark, in which it was enclosed, empty.

GENUS VII. *NIDULARIA*.

A small Fungus, leather-like, membranaceous, sessile, in the form of a cup or inverted bell, holding seeds at the bottom, resembling lentils; very broad and foot-stalked.

GENUS VIII. *HYPOXYLON*.

A small Fungus, leathery or woody, at first it is sprinkled over with a male dust, generally very conspicuous, it nourishes its very numerous seeds mixed with a glutinous juice in little cells, and is therefore monoecious.

GENUS IX. *VELIOLARIA*.

A small Fungus, of a woody or leathery substance, sometimes composed of many small cells, joined together in form of a stud; sometimes of one single cell, rising on the barks of dead or dying trees, remaining more or less deeply fixed among their strata, and covered with an epidermis. It nourishes its seeds, mixed with a glutinous juice, in little cells.

GENUS X. *CLATHRUS*.

A Fungus composed of fleshy branches, long and round, continued among themselves; cross-barred or latticed, and as it were arched, nourishing its seeds within; hitherto we know only one Clathrus, it is volva-ceous, sessile, and produces seeds mixed in a moist substance.

GENUS XI. *CLAVARIA*.

A long, cylindrical, or club-shaped Fungus, vertical, and emitting seeds from all the parts of its surface.

GENUS XII. *TREMELLA*.

A gelatinous, cartilagenous, and sometimes fleshy Fungus, variously expanded in breadth, mostly sessile, and emitting seeds from all the parts of its surface.

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GENUS XIII. *PEZIZA*.

A Fungus hollowed out at the top, in form of a bowl, a shield, a box, a bladder, or purse; and from this part only emitting seeds, sometimes by jerks, with intermissions, as if caused by irritation.

GENUS XIV. *PHALLUS*.

A foot-stalked Fungus; the upper part in the form of a hat, hollowed out in cells, and from these only pouring out seeds.

GENUS XV. *AURICULARIA*.

A Fungus, sessile, and generally membranaceous, growing to trunks of trees, or the ground, by all its inferior surface; as it grows older, and is more unfolded, it is loosened, and turned upside down; it emits seeds from the superior surface, then become the inferior, but in a slow and long lapse of time.

GENUS XVI. *HELVELLA*.

A Fungus, generally growing perpendicularly, never, while unfolding, departing from its original habit; emitting seeds, in a short time, from its inferior surface, (which is either smooth or veiny,) with jets at intervals, as if caused by irritation.

GENUS XVII. *HYDNUM*.

A Fungus, expanded, on the lower side, into solid prickles, generally cylindrical, pointing straight to the ground, and emitting seeds from every point of their surface.

GENUS XVIII. *FISTULINA*.

A Fungus, expanded in the lower surface, into separate tubes, like the prickles of the Hydnum, and in these tubes nourishing its seeds. Only one species of this genus has hitherto offered itself to observation; it is fleshy, soft, and divided into two parts.

GENUS XIX. *BOLETUS*.

A Fungus, expanded, on the under side, into pores or small tubes, joined together, and bearing seeds. These tubes or pores sometimes seem only pasted to the flesh, at others they are united with, and are, seemingly a prolongation of it.

Nature itself indicates a double division of the *Boleti*. The first division includes those with tubes or pores, so loosely adhering to the flesh, as to be easily separated from it. The second includes those with tubes or pores, proceeding from the flesh itself, or cohering very closely with it.

In the general index, annexed to this appendix, I have not been under a necessity of collecting together the synonyma of authors, as they are given at the head of the descriptions of the species respectively. The references in this index are directed chiefly to the best figures, given by authors of good repute. If I have taken the liberty of citing several of their figures and names under one species, it has not been done, but where I have myself seen the plant under notice putting on, in some of its states or stages, an appearance well agreeing with the figures and descriptions given of such varieties (if I may be allowed to call them so). I could produce many instances to illustrate my present meaning, but one shall suffice.

In SCHOEFFER's History of Fungusses, Tab. 105. is the figure of a plant he calls *Boletus olivaceus*, Tab. 112. *Boletus crassipes*. Tab. 126. *Boletus ferrugineus*. Tab. 130. *Boletus appendiculatus*. Tab. 133. *Boletus cypreus*. Tab. 134 and 135, *Boletus bulbosus*, and Tab. 315, *Boletus terreus*. I am well convinced, from observation, that the figures on the above eight plates, were all taken from one individual species, the common yellow *Boletus*. I will not positively assert that they are so, but I am sure that specimens, sufficiently agreeing with all these figures, have at various times, fallen under my notice. I have gathered them, examined them, and passed them by as varieties of the *Boletus luteus*; and yet

SCHOEFFER

SCHOEFFER has avoided giving that name to any one of them. Many like instances might be pointed out in SCHOEFFER's work, and not in that alone.

I always had, and still have, an aversion to the unnecessary multiplying of specific names in our botanic nomenclature; and there is no order of plants, where we are so liable to slip into errors of that kind, as in the Fungusses.

There is a pride in man, to be thought the inventor or discoverer of something new. In regard to things useful, this is a laudable vanity; but to add a new name to a known plant, or other subject in Natural History, because we meet with an individual perhaps distorted in its shape, diminished or increased in its quantity, sickened by improper food or soil, or tinged with colours different from those of its own species, this is not only vain and ridiculous in itself, but pernicious in its consequences. It is not, however, at all times to be guarded against, without a long acquaintance with the subjects under notice, especially where their specific characters are less defined and less obvious, as is the case with most of the plants which constitute the most numerous and extensive class, the Cryptogamia.

The incongruity of names, given to these and other subjects in Natural History, is a stumbling block in the way of science; it is an evil, however, that must at present be dispensed with, because it is an unavoidable one; for when several men, strangers to each other, and in different kingdoms, are engaged in the same pursuit; suppose the same object should fall into the hands of each, and suppose the object unknown to all of them; each finds it necessary to give it a name, at least a specific one; and he wishes to give it such an one, as will be somehow or other expressive of the object under review; this will be given according to his own idea, or apprehension both of the object, and of the name. But men's ideas and apprehensions vary as much as their faces vary, so that under the above circumstances, if the same object should fall under the notice of twenty different describers or discoverers, that five out of the twenty should denominate it by the self same term, is little less than impossible. This is the principal cause
of

of that confusion of names, which is every day increasing, and which cannot easily be removed; especially in regard to the plants of this order. To attempt it at present, would be in vain, because the investigation of them is a branch of science now cultivated with spirit in several parts of Europe; and the field for new discoveries, is still so ample and so rich, that every new season deepens the columns of our former lists, and makes continual additions to that stock, which does not perhaps yet exhibit more than one fifth part, of the objects that must be investigated, before mankind can be possessed of a complete nomenclature.

Some of the Fungi are greatly esteemed for their excellent flavour; either eaten alone, or prepared in sauces; 'tis said, that in some parts of Russia they are eaten indiscriminally; though HALLER seems to condemn the use of them as esculants; being of a pernicious and dangerous nature. That they are possessed of powerful qualities, is manifest; but we are in a great measure ignorant of the nature of those qualities; some of them are known to be poisonous, are they hence to be disregarded? Are not many of the most valuable articles in the *materia medica* also poisonous? and yet are possessed of principals highly beneficial to mankind. Who can say that these are not rich in qualities, equally useful, were they scientifically investigated, and universally known: a knowledge of the use they might be applied to, and the manner of applying them, must be the results of experiments to be made; perhaps by the industry of a future age. But neither in these, nor in any other class of bodies, can their qualities be properly investigated, until the species of such bodies be ascertained. The first of these improvements may be reserved to a future generation; the last seems appropriated to this,

Stannary, near Halifax,
December 31, 1791.



This Agaric I gathered in Oxenden near Halifax. June the 8th Anno Domini 1799. J. Bolton.

AGARICUS *stipitatus pileo, pallide-rubro, superfice pustulato* CLXXVII.
pustulis subangulatis apicibus fuscis, velo albo permenere, *myodes.*
stipite brevi, basi crassiusculo subrubro. Schæf. P. 69. No.
 149. Battarra, P. 28. B.

BROAD-NECKED AGARIC.

T A B. CXXXIX.

THE root is gross, and has a kind of broken annular wrinkles; it is of a firm solid substance, white, of a pale flesh colour on the outside, furnished with brown fibres, and destitute of volva.

The stem is short, upright, round and solid, white within, and of a spongy substance.

The gills are white, soft, very delicate, of an oblong figure, and adhere by a small claw to the top of the stem.

The pileus is convex; the margin inflected, smooth and entire; the surface covered with angular warts, of various sides, which are of the same red colour as the pileus, except the summits, which are dusky; the internal substance is brittle, spongy and white.

This species I gathered in a dry gravelly soil, near *Lee-Bridge*, June the 12th, 1790.

- CLXXVIII. AGARICUS *stipitatus*, pileo convexo, squamoso subfusco, lamellis
congregatus. *albidis, petiolo tereti fuscescente, basi crassiusculo; velo et an-*
nulo albido. Annularius Bulliard, 377.

CONGREGATED AGARIC.

T A B. CXL.

THE root produces numerous stems, consists of a misshapen lump, and is furnished with numerous fibres.

The stem is four or five inches high, round, largest at the base, tapering upwards, of a pale brown, changing darker with age; the substance within is white, solid, and elastic.

The curtain is white, thick, downy, and elastic; arising from a thick, soft, downy annulus, which abides till the decay of the plant.

The pileus is convex, gently rolled in at the margin, where it is frequently gashed or rent; it is of a brownish cinnamon colour, darkest in the middle, with little tufts or scales of a darker colour, which are most numerous near the summit.

Grows in woods but rare. The specimen here figured and described, I gathered in the *Burks*, near *Halifax*, in July, 1790.



J. Bolton del et sculp.^t 1790.



AGARICUS *stipitatus*, pileo convexo lutescente irrorato, lamellis CLXXXIX.
pallidis, stipitibus annulatis, farctis. Flo. Dan. Fas 17, P. *melleus.*
 9. *Agaricus obscurus.* Schæf. P. 32, No. 65.

HONEY'D AGARIC.

T A B. CXLI.

THE root is large, and of a dark brown; the plant sometimes solitary, sometimes a number grow together, adhering by their numerous brown fibres.

The stem is solid, spongy, largest, and darkest coloured near the base; it is sometimes a little scaly.

The curtain is white, thick, woolly, tough, and abiding; separates from the rim of the pileus without tearing; contracts and abides on the stem like a little thick ruffle.

The gills are in three series, arched, at first white, changing brown with age; they adhere, by a broad base, to the top of the stem.

The pileus is at first convex, in time becomes flat, at last funnel-shaped, and lacerates in decay; it is of a dusky cinnamon brown colour, growing darker with age. The surface, more or less, covered with little tufts or scales of a colour still darker; and while young, especially in moist weather, covered with a glutin, which looks like a honey dew.

This species came up, abundantly, in the wood called *Shroggs*, near *Halifax*, A. D. 1790.

CXC.
obscure.

AGARICUS *stipitatus*, pileo ab initio albo tomentoso, post striato pulvere rubro obducto lucerato. Lamellis integris numerosis atris; stipitibus fistulosus albus, velo albo permenerere. Fungus sterquilinus ex albo griseus. Mich. Gen. P. 181.

PLEASING AGARIC.

T A B. CXLII.

THE root is swelled, and emits white downy fibres.

The stem is white, of a soft silky surface, and easily splits in shining white filaments; it is hollow, but with a soft silky down in the perforation,

The curtain is white, soft, downy, and separates from the rim of the pileus; when the stem has attained but a small part of its height; it is permanent, abiding near the bottom of the stem, till the decay of the plant.

The gills are, while the plant is young, covered with a carnation-coloured powder, changing black in decay, rolling upwards, and dissolving in a black turbid gelly.

The pileus at first covered with a white downy epidermis, which soon disappears, and the surface becomes striated, and of a soft, downy, livid, carnation colour; which colour, both in the young and old plants, consists of a soft powder, which at last changes black and dissolves.

Grows on new dunghills; but is rare about *Halifax*.





James Dallon del: etc. 1790

AGARICUS *stipitatus*, *pileo pulvinato cæruleo-viridi*, *lamellis fuscis*, *stipite longo virescente*.

CXCI.
cyaneus.

GLAUCOUS AGARIC.

T A B. CXLIII.

THE root is hard, and furnished with a few strong, hard, white fibres; it produces sometimes one plant, sometimes several.

The stem is three or four inches high, cylindrical, upright, of a pale glaucous blue green, and near the bottom is shagged with loose cottony films of a paler colour. These filmy substances are the remains of a curtain, which break when the plant is young, and abide in fragments, both here, and also around the rim of the pileus.

The gills are in three series, of a dusky colour, inclining a little to red; the first series adhering, by the base, to the top of the stem, are broadest in the middle, rendering the lower surface of the pileus prominent.

The pileus is cushion-shaped, but with a gentle elevation in the centre; it is of a bright glaucous blue green, and covered with a slippery glutin; when old, the colour changes to a dirty brown.

It is a rare species. Grew in Mr. POLLARD's Garden, at Stannary, November the 12th, 1790.

- CXCH. *AGARICUS stipitatus*, pileo hemisphærico centro depresso, margine furnicato laterito: lamellis trifidis concoloribus; stipite brevi fistuloso, lacteo, aureo. Schæf. P. 7. No. 11. *Lactifluus zonarius*. Bulliard.

Z O N E D A G A R I C.

T A B. CXLIV.

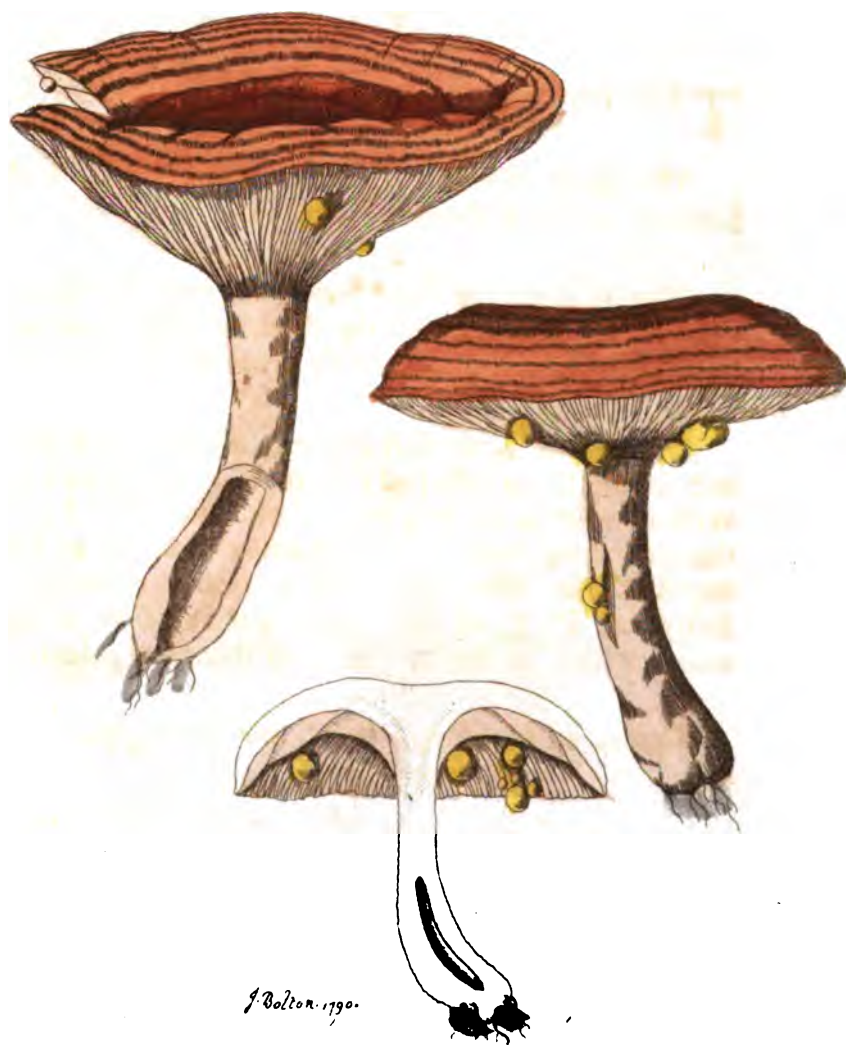
THE root is hard, tough, and emits brown fibres.

The stem cylindrical, while young solid, with age becomes hollow, and is destitute of curtain.

The gills are in three series, narrow, brittle, of a pale brick colour, and when they, the stem or pileus, are wounded, a yellow acrid milk flows copiously from the wound.

The pileus is at first convex, afterwards becomes horizontal, and lastly funnel-shaped; it is of a pale brick colour, marked with concentric circles, of a darker colour. In some specimens the circles are very distinct, in others less so, in some scarce perceptible. In this last state it nearly resembles the *Agaricus lactifluus*, Pl. 3. of this work, but is easily distinguished by its milk, which in that is white, in this of a golden colour.

Grows in *Woodhouse-Wood*, but sparingly.





AGARICUS *stipitatus*, pileo ab initio planiusculo, post infundibuliformi. Stipite basin versus crassiusculo. Radice fibroso.

CXCIII.
cyathoides.

Agaricus cyathoides. Bulliard. *Multiformis.* Schæf. P. 9. No. 14.

CUPPED AGARIC.

T A B. CXLV.

THE root is large, covered with a white mouldy down, and emits numerous long, hard, white fibres; it supports a single plant, but sometimes several grow in close neighbourhood, and are entangled together by those fibres.

The stem is solid, consisting of a strong bark or rind, filled with a soft, spongy, white pith; it is of a grayish white on the outside, and marked with a kind of small longitudinal reticulations of a paler colour.

The gills are arranged in three series; white in the first stages of the plant, changing afterwards to a pale brown.

The pileus at first small and horizontal, it increases greatly in the progress of growth, becomes cup-shaped, and in some specimens contracts its margin at one or more places, so as to form several partial cups; it is nearly destitute of flesh, is of a plumbeous brown on the surface, smooth and silky to the touch.

Grew under an old melon frame, in Mrs. CAYGILL's Garden, at *Sba*, near *Halifax*, in February, 1790.

- CXCIV. *AGARICUS stipitatus, pileo centro plano, cinereo margine fornicuto violaceo, lamellis pallidis angustis decurrentibus, stipite brevi.*
carnosus.

FLESHY AGARIC.

T A B. CXLVI.

THE root is hard, tough, and furnished with short downy fibres.

The stem is very short, increasing in thickness from the bottom upwards. There is no curtain.

The gills are in three series, very narrow, as at B. numerous, of a pale kind of buff-colour, and decurrent.

The pileus is flat or hollowed, convex or funnel-shaped, according to the age of the Plant, as at A. B. C. E. F. It is sometimes halved or defective on one side, as at D. The surface is smooth and soft, feels to the touch like fine woollen cloth; is of a pale brownish ash colour, in the middle part; which colour is lost in a pale violet hue at the rim, which is remarkably rolled in. The substance of the flesh is white, very firm and solid.

Grew on stumps of trees in *Northowram*, in August, 1791; elsewhere I have not seen it.—I find no figure or description which well agrees with this species.



Junonia helena (L.) Sacc. — Stannary near Halifax. Sept. 6. 1881



AGARICUS *stipitatus*, pileo convexo-fuscescente, lamellis cærulefcentibus, stipite brevi basi bulboso, violaceo. *Agaricus nudus*. Bulliard, 439. *Cærulescens*. Schæf. P. 17. No. 29.

CXCv.

bulbosus.

BULBOUS AGARIC.

T A B. CXLVII.

THE root is bulb-shaped, of a pale violet colour about the upper part, brownish at the base, where it emits short fibres; it is destitute of volva.

The stem two inches high, of a pale violet colour, and a soft clothly surface; within it is white, and of a brittle substance; while young solid, in decay becomes fistular, and at last dissolves.

The gills are in three series, thin, pliable, numerous; while fresh of a pale violet colour, which in decay vanishes, and leaves them of a dusky hue.

The pileus is smooth, feels like fine vellum, is convex and deflected round the margin, which is remarkably smooth and entire; while young it is clouded with violet colour; when old changes to a dusky brown, and dissolves.

It is a rare species. The specimens here described, I gathered in *Ovenden*, in a little wood above *Old-Lane-Mill*, in October, 1790.

Y

- CXCVI. *AGARICUS stipitatus*, pileo pallide luteo convexo, centro sub-fulvo; lamellis trifidis angustis pallide-luteus, velo araneofo, stipite longo basi ramoso, radices fusiformis productus. Sterb. T. 25, radices omiffus.

BRANCHED LONG-ROOTED AGARIC.

T A B. CXLVIII.

THE root is long and taper, of a dusky buff colour, emitting a few soft downy fibres from its sides; at the head it divides into many footstalks, which are long, cylindrical, solid, smooth, of a pale dusky yellow or buff colour, both within and without, and easily splits in fine filaments.

The curtain is light, delicate, of a pale yellow, and soon vanishes.

The gills are arranged in three series, narrow arched, of a pale yellow, and adhere to the top of the stem by a narrow base.

The pileus is convex, of a pale yellow colour near the margin; the centre fulvous-coloured; it is of a thin substance, almost destitute of flesh.

The plant varies much in bigness, according to its age; all the figures are the natural size. It is a rare species. I gathered it in the plantations at *Fixby-Hall*, and it has been sent me from *Darlington*.





AGARICUS *stipitatus*, pileo hemisphærico centro sæpe fastigiato
pallide flavo, petiolo tereti pleno basi crassiusculo, velo fugacio. CXCVII.
Ag. flavidus. Schæf. P. 17. No. 30. *flavidus.*

BRIGHT YELLOW AGARIC.

T A B. CXLIX.

THE root is small and hard, emitting black-brown fibres.

The stem is two inches high, smooth, largest at the base, hollow, yellow both within and without, and easily splits in yellow shining filaments.

The curtain is white, extremely light and delicate; it vanishes in the infancy of the plant, and leaves no mark on the stem.

The gills are in three series, of a narrow oblong figure, thin, and tender; they are at first white, afterwards yellow, and change at last to a dusky brown.

The pileus at first conical, and covered with a tough slippery glutin; afterwards becomes convex, but most frequently with the centre a little elevated; in the progress of growth, the margin becomes striated, and frequently rent; at last the whole plant dissolves in a brown gelly.

Grows on dunghills, after rain, in *June* and *July*.

- CXCVIII. *AGARICUS stipitatus, pileo convexo rufo, lamellis trifidis remotis concoloribus, stipite cylindrico flavo. Agaricus cinnamoneus. Sp. Pl. 1642. Hudson Ang. 615. No. 19. Agaricus croceus. Schæf. P. 3. No. 4.*
cinnamomeus.

CINNAMON-COLOURED AGARIC.

T A B. CL.

THE root is round, of a hard tough substance, and furnished with short brown fibres.

The stem is cylindrical, of a dusky gold colour, and hollow within; it easily splits in yellow filaments, and varies in height from two to four inches.

The gills are in three series; the base very broad, rounded off, and not adhering to the stem; they are remote, narrow towards the point, and of a strong golden red.

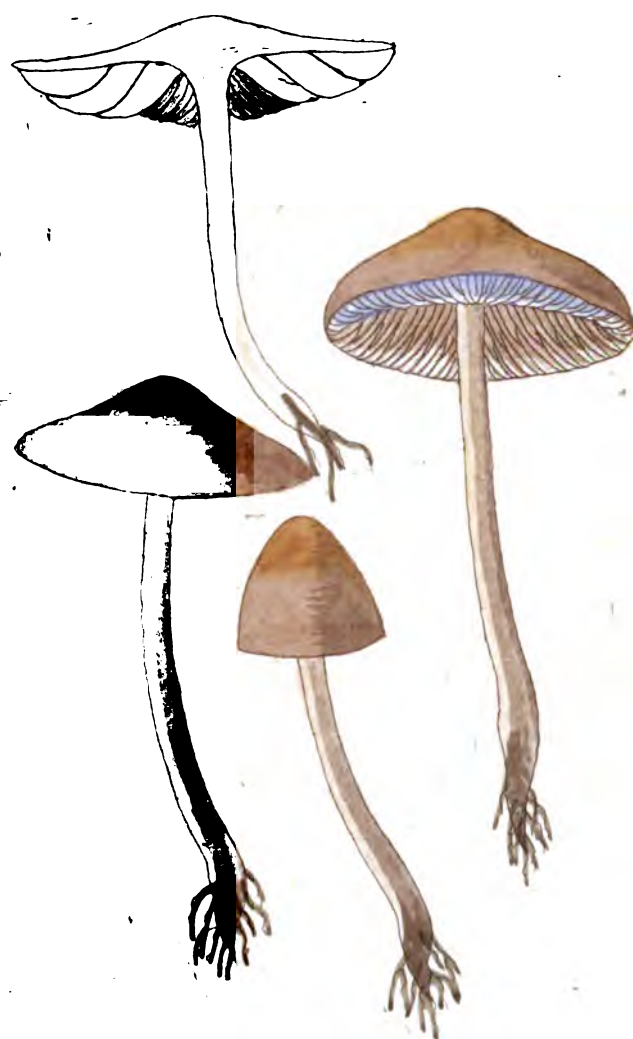
The pileus is at first hemispherical, a little elevated in the centre; when full grown becomes nearly flat, the rim smooth and acute; the colour a dark brownish red or strong cinnamon; the surface appears silky, is smooth and dry.

Grows in woods about *Halifax*, but is rare.

I believe this plant to be the true *Agaricus cinnamomeus* of LINNÆUS; and it seems specifically distinct from my *cinnamomeus*, T. 22. I had not seen this species when I gave the name to that; and as that does not materially differ from the *cinnamomeus*, I would call it *pseudo-cinnamomeus* for the future.



J. Bolton. Nov. 1790.



AGARICUS *stipitatus*, pileo complanato subfusco pallido, lamellis albis trifidis basi angustis, stipite pleno albo fistuloso. Ag. *pallidus*. Schæf. P. 22, No. 34.—*ib.* *melleus*, P. 20, No. 39. Ag. *pseudo-mouceron*. Bulliard, 144. CXCIX. *oreadus*.

FAIRY AGARIC.

T A B. CLI.

THE root is slender, brown, and fibrous.

The stem smooth, cylindrical, white, easily split into white filaments.

The gills are regularly disposed in three series; they are white remote, broad in the middle, with a narrow base.

The pileus smooth, at first conical, afterwards horizontal, and in decay umbilicated; at all times of a pretty buff-coloured brown, very pale, particularly about the margin; a little darker about the centre.

This agaric is more frequent in those green circles which we call *fairy rings*, than any other species. It is also to be found in pasture grounds, and about the borders of woods, in August and September.

This is not the only species of agaric which we find in fairy rings, but this grows most frequently there.

CC. *AGARICUS stipitatus, pileo convexo, fulvo, cincto uno obscuro*
cinctulus. picto, lamellis trifidis latus nigrus, stipite longo fistuloso fusco.

BELTED AGARIC.

T A B. CLII.

THE root is small, round, hard, firm, and furnished with numerous fibres.

The stem is cylindrical, tall, of a dull fuscous colour, both within and without; it is hollow, and splits in long brown filaments.

The gills are arranged in three series; they are very broad in the middle, and diminish to each extremity; the colour is a dusky black, the substance tender and brittle.

The pileus is convex; it is a kind of red deer colour, with a broad belt of a dark brown, which colour is not only on the surface, but penetrates the whole substance of the pileus, as is shewn in the half figure on the plate.—In young plants the marginal light circle is wanting, as the smallest figure represents.

Grows on dunghills, after rain, in June and July. I gathered the specimen, here figured and described, June the 25th, 1789.





AGARICUS *caulescens, solitarius carnosus, pileo convexo albo,* CCI.
lamellis crassiusculis albis, petiolo tereti pleno longiusculo albo, albu.
basī crassiusculo. Schæf. P. 68. No. 144.

WHITE. AGARIC.

T A B. CLIII.

THE root is small, hard, brown, and fibrous.

The stem is solid, and easily splits in fine white silky filaments; it is of a pure white both within and without; the height is about five inches in the specimen before me; it is round, largest at the base, whence it decreases gradually upwards; there is no volva or curtain.

The gills are arranged in three series, they are numerous, thin, pliable, of an oblong figure, and white.

The pileus is convex, the surface very smooth, and feels like vellum; the flesh is thin, and spongy; the colour, both within and without, a fair milk white, except the apex, which is gently tinged with a pale brown.

These specimens grew in the *Sheep-Croft*, at *Stannary*, August the 12th, 1791. I have seen it elsewhere in sheep pastures.

- CCII. *AGARICUS stipitatus*, pileo conico olivaceo-fusco, margine revoluto striato pallesco, lamellis trifidis pallidus, stipite gracili fistulosi.
pseudo-clypeatus.

FALSE SHIELD AGARIC.

T A B. CLIV.

THE root adheres to putrid wood, without visible fibres; it produces plants single or in clusters.

The stem is small, of a dusky colour, fistular, and tough, easily rending in fine filaments or fibres; there is no curtain.

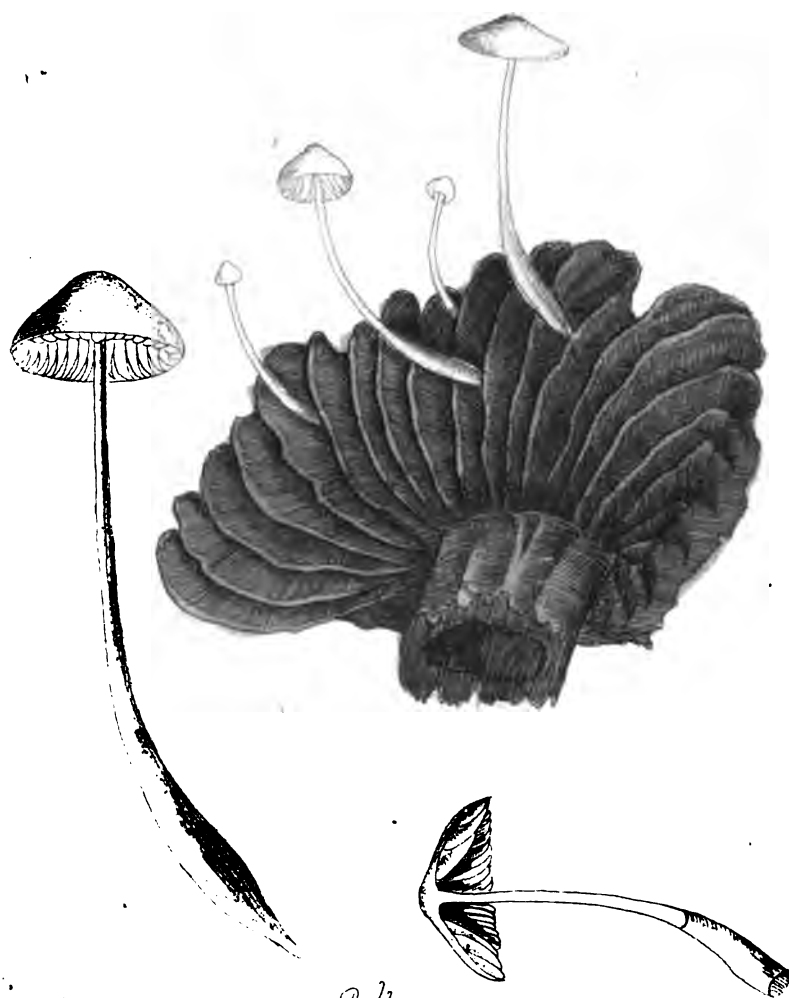
The gills are in three series, white while the plant is young, turning brown with age; they are tough, flexible, and remote.

The pileus is cone-shaped while the plant is young, when full grown the rim becomes striated, and rolls upwards; the colour is a dusky olive, dark near the summit, paler near the margin; the plant withers in decay.

Grows on the decaying stumps of fallen trees. I saw it in October, 1790, on old stumps near *Lee-Bridge*; and again this present year, 1791, beside the little rivulet at *Burks-Hall*. I think it has not before been figured or described.



J. Bolton. Nov. 1790.



J. Bolton. 1790.

AGARICUS *stipitatus*, pileo convexo albo, lamellis trifidis albidis,
stipite gracili basi crassiusculo subrubro.

CCIII.

alumnus.

FOSTERED AGARIC.

T A B. CLV.

THE root is inserted into the substance on which it grows,
 without visible fibres.

The stem is white, and slender towards the top, near the base
 it is swelled, and sometimes tinged very gently with red.

The gills are arranged in three series; they are few, broad in
 proportion to the size of the plant, and loose at the base, not ad-
 hering to the stem; they are white, and of a soft downy sub-
 stance.

The pileus is convex; in some specimens the summit a little
 raised; it is white and destitute of flesh. The specimens before
 me grew on old plants of the *Agaricus integer*, in a state of utter
 decay, when turned black and quite rotten.

Grows in *Woodhouse-Wood*, but is rare there.

This species is nearly related to the *Agaricus tuberosus* of
Bulliard, Pl. 256. but I can discover no downy circle near the
 base of the stem, and the tubrous root is wanting.

CCIV.
tomentosus.

AGARICUS *stipitatus*, pileo ab initio pyramidalis, post campaniformi lacerato, lamellis trifidis numerosis angustis pallidis, margine atris, stipite cylindrico tomentoso fistulosa. Agaricus tomentosus. Bulliard.

D O W N Y A G A R I C.

T A B. CLVL

THE root is small, black, and emits a few short brown fibres.

The stem is upright, cylindrical, hollow; the substance white, and easily torn in filaments; it is covered, on the outside, with a lead-coloured down.

The gills are arranged in three series; those of the first series long and narrow; they are white on the sides, but furnished with a black down or powder on the edges, which, before the plant is torn, makes them appear wholly black.

The pileus is at first oval or oblong; when the rim begins to enlarge it becomes of a pyramidal figure; at last bell-shaped, lacerates, and soon dissolves. In its first stages it is thickly covered with a gray or lead-coloured down, which covering tears in fragments as the pileus extends in breadth, and remains on its white striated surface, in broken, deformed, gray patches.

I gathered this species near *Ogden-Kirk*, amongst wet moss, in the ground where peat is dug for fuel.





Drawn and etched on the Copper immediately from the fresh Plant by J. Bolton. A. 1790.

AGARICUS *substipitatus*, pileo planiusculo lacero multiformi cervino margine crinato, lamellis trifidis pallidis subcrenatis, stipite brevi fove nulla. Agaricus flabelliformis. Schæf. CCV.
P. 20. No. 38.

FAN-SHAPED PARASITIC AGARIC.

T A B. CLVII.

WHEN the plant grows single, it adheres by a very short small lateral stem; when it grows in bundles, several plants issue from one hard misshapen root, without any visible stem.

The gills are arranged in three series; they are long, moderately broad, tough, flexible, and of a pale buff colour; in old plants they become darker coloured, and sometimes distinctly dented or crenated on the edges.

The pileus is circular, except the defective side; the margin dented, curled, and undulated, lacerating in decay; it is of a tough substance, destitute of flesh, of a smooth vellumy surface, and of a bright brown, or red deer colour; darkest near the defective side.

The specimens before me, grew on the side of an old tree, beside the brook below *Mixenden-Mill*, in February, 1790.

- CCVI. *AGARICUS acaulis, pile ovelutino striis concentricis notato, margine acuto lobato, lamellis rarus subramosus, sæpius simplicibus. Agaricus de St. Clou. Vaill. Paris, P. 3. Agaricus coriaceus. Bulliard.*

LEATHERY AGARIC.

T A B. CLVIII.

THE specimens before me, adhered to putrid wood, by the centre of the pileus, or by what may be more properly called the centre of the plant; it is covered with a short velvety down, and marked with concentric circles, of various degrees of paler and darker buff colour; in age these colours disappear, and the whole surface changes to a dirty dull dark green; the margin is thin, acute, variously lobed, sinuated, and curled; the plant frequently halved, and growing by one side only; the substance is tough, dry, and leathery.

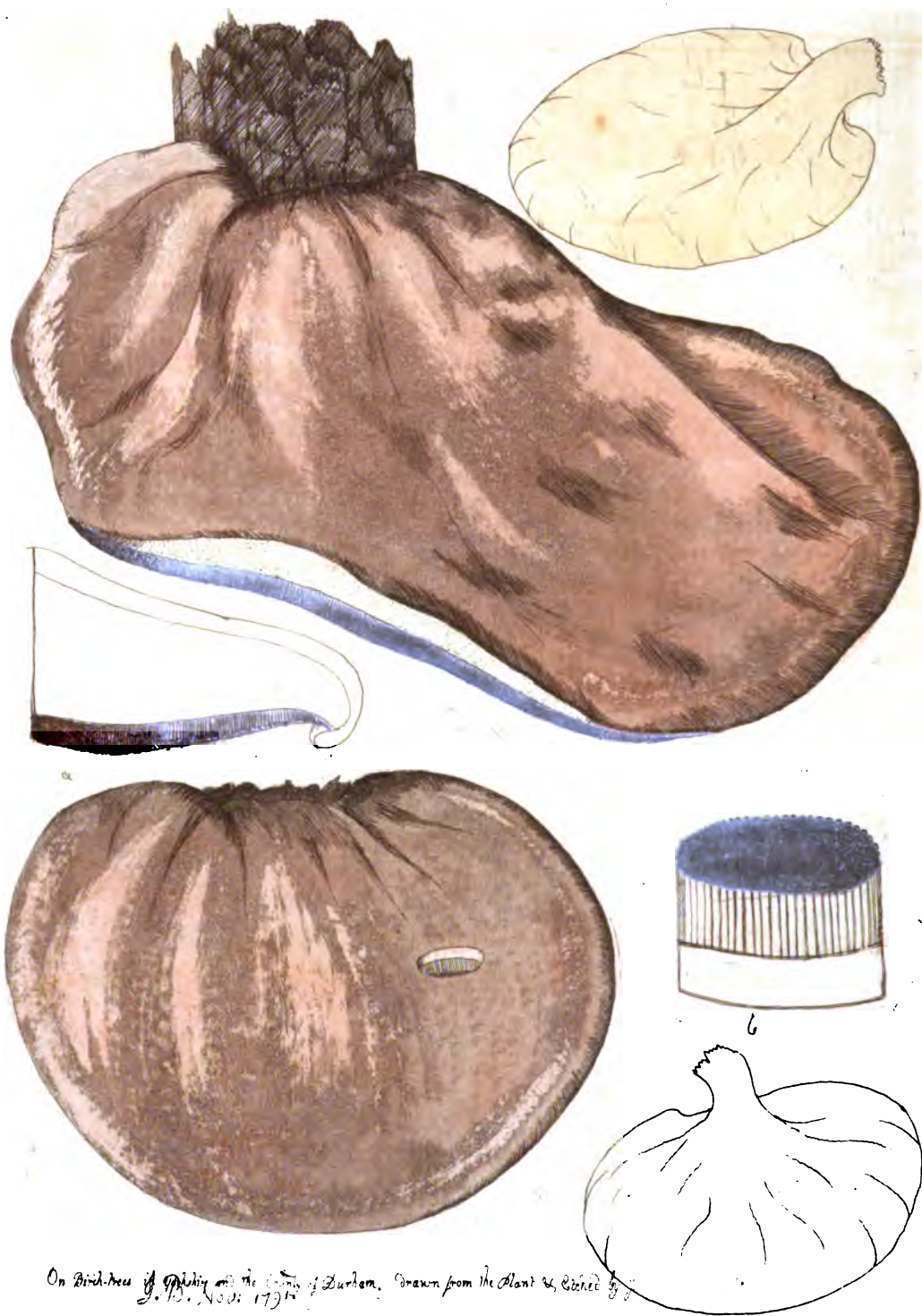
The gills are very various in length; some are extended from the centre to the rim, and are intersected by others, which arise at a small distance from the centre; and run to the rim, which manner of arrangement is seven or eight times repeated, as the figure represents; rarely, the short are connected, at their base, to the longer, but most frequently simple and separate from each other; they are thin, of a leathery substance, and a pale cork colour.

Grew on old pales near *Sibden-Hall*, January, 1791.

N. B. The figures in *Vaill. Paris*, Tab. 1. Fig. 1, 2, 3. were undoubtedly taken from specimens of this species.



Drawn & Etched from Nature, by J. Bolton. January 18th AD 1794.



On Birch-trees of Whiting and the County of Durham. Drawn from the Plant as collected by J. B. N. 1791

CCVII.

betulinus.

B O L E T I.

BOLETUS coriaceus subspitatus glaber dimidiatus, carne alba, tubis brevissimis niveis carne separabilibus. Bulliard text. P. 348. No. 28.

B I R C H B O L E T U S.

T A B. CLIX.

THIS Boletus, in the specimen before me, has a very short stem, which rises obliquely, from the upper surface, over the defective side of the plant, as is represented in the simple outlines on the plate; but sometimes it adheres by its side, and this spurious stem is absent. The surface is of a pale kind of brown, with a tinge of red, but this colour effects only a thin skin or epidermis, with which the plant is covered, and which frequently cracks and peels off in small patches, leaving the surface marked with spots and blotches of a pure white, as is the internal whole substance of the plant; when old the margin is obtuse and rolled in, and the surface of the plant highly convex.

The lower surface is nearly plain, the pores white and minute, the tubes very short and white, and while fresh may be separated from the flesh of the pileus.

This grew on birch trees in *Shackleton-Wood*, near *Heptonstall*; and the same has been sent me from *Darlington*.

CCVIII. BOLETUS *coriaceo lignosus sessilis dimidiatis, supra scabro
 confragosus. zonatus subfuscus, carne ferugineo-pallide, tubis cinereis poris
 multiformis. Boletus labyrinthiformis. Bulliard texte. P.
 357. No. 37.*

RUGGED BOLETUS.

T A B. CLX.

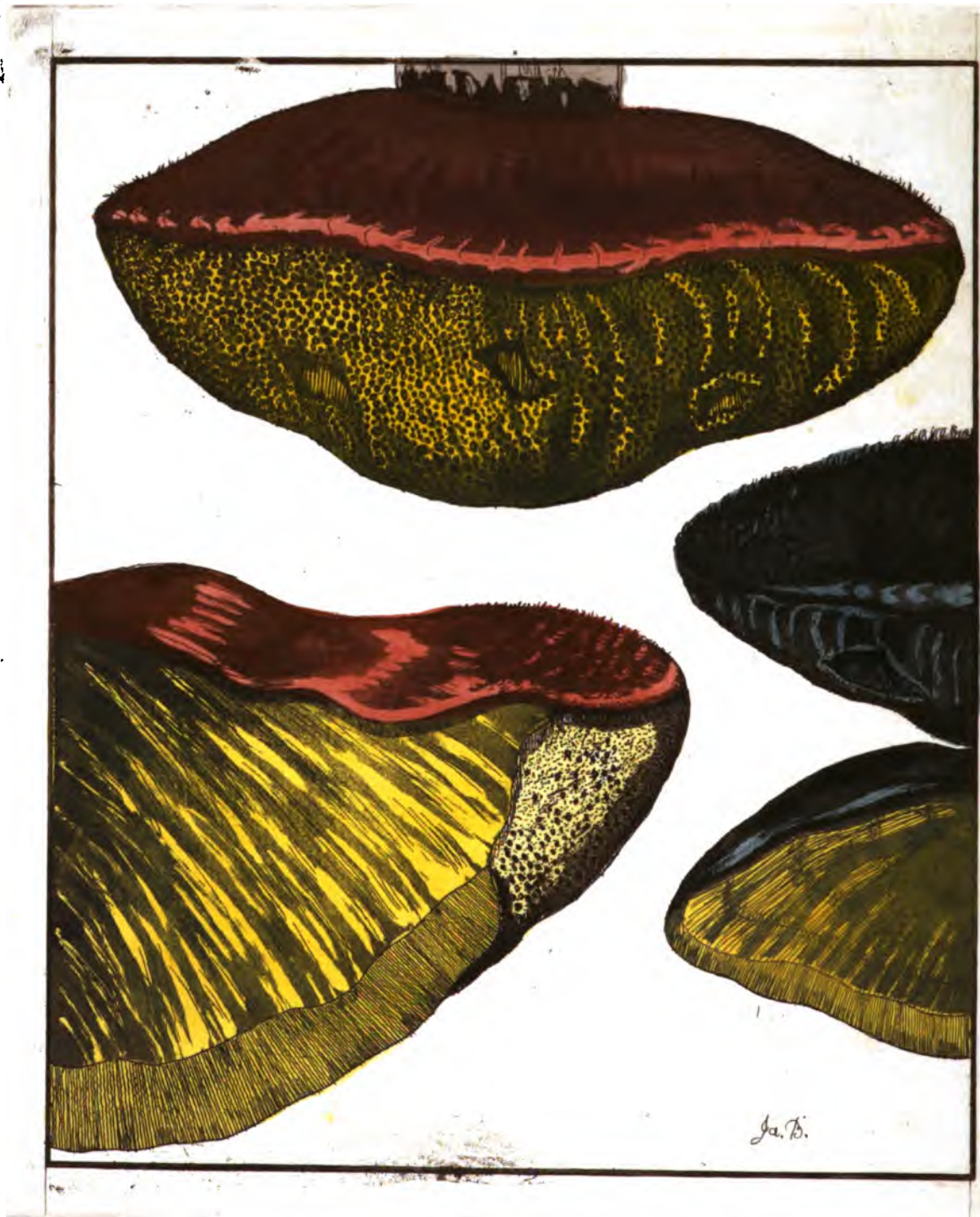
THIS is semicircular, adhering, by one side, to the stumps and putrid roots of trees; the upper surface is very rugged and uneven, marked with concentric circles at distances; the spaces between the circles made rough with raised wrinkles; the colour is brown, with a cast of red, darkest near the margin, which is blunt, and in some specimens lobed or waved. The substance within is woody, cuts very smooth, is of a pretty pale brown colour, and beautifully marked with veins and clouds of a darker hue.

The tubes are pretty long, adhere together by their sides, and are inseparable from the flesh of the pileus.

The pores are of a redish brown, very various in figure and in size, round, oblong, angular, large or small, in various parts of the same specimen.

This I gathered on old trees, near *Fixby-Hall*; and have received specimens of the same from *Darlington*.





BOLETUS *coriaceo-mollis, sessilis, dimidiatis, pileo rigido hirtus* [CCIX.
vetustate nigricans, carne crassimine fulva, tubis fimbriatis. *bispidus.*
Bulliad, P. 351. No. 3. Boletus spongiosus. Lightfoot
Scot. 1033. No. 4.

HAIRY BOLETUS.

T A B. CLXI.

THIS is halved, adhering by one side; it is very various in shape and size, being sometimes of a semicircular figure, but more frequently swollen out in lumps, of no determinate shape, lying one upon another, or pressing to one another, and united together by their sides.

The upper surface is of a dark reddish brown, sometimes smooth, sometimes covered with a thick black or brown shag, or hairy covering, which arises from a thick black bark; the substance within is soft and spongy, while fresh easily tears in slips, from the centre to the margin, but cuts not without much difficulty; when dry it becomes very tough, it catches and retains fire, like the *Boletus ignarius*.

The tubes are long, of the same golden colour as the flesh. The pores of a pale yellow while young, the size various, the margins ciliated, when old a dark brown, and contracted, at last, they, together with the whole plant, turn black and perish.

These specimens I gathered near *Bradford*, on one of the trunks of a remarkable tree, called the *Four-Asbes*, November the 5th, 1791. I have received the same from *Darlington*.

- CCX. BOLETUS *acaulis coriaceo convexus vellosus albus, poris diffor-*
suberosus. mibus rotundis flexuosisque. Flo. suecica, 1253. Sp. Pl.
 1645. Schæf. P. 92. No. 105. Bulliard texte, 354. No. 35.

CORK BOLETUS.

T A B. CLXII.

THIS is halved and sessile, growing to the stocks of trees by one side; the upper surface, while the plant is young, is white, and covered with a white, soft, short down; when old it changes to a pale brown, and becomes smooth, as at D. in both states it is highly convex, and is, though smooth, made uneven by rising bunches.

The lower surface is generally but little convex, or almost flat, as at A. B. The base is sometimes extended downwards, and the margin continued quite round, as at C.

The pores are various; some round and distinct, others lengthened out into long waving hollows; sometimes they shoot down in bundles of various forms, resembling, in miniature, bunches of Icicles, or the figures that are formed in the sides of caverns by the congealed calcarious drop.

When dried it has a smell like aniseeds, or the common pectoral lozenges. Is it specifically distinct from the Boletus suaveolens, LINN.?

Grows on old fallow trees, This specimen grew in a hedge near *Sbibden-Hall*; I have received the same plant from *Darlington*.





Specimen on the Blade immediately from the Plant. by J. Bolton at Mennary near Killybegs Anno Domini 1890.

BOLETUS *coriaceus tenuis, dimidiatus. supra lanatus zonatus
nec variegatus, tubis dædaleis subrutilo cinereis. Bulliard
texte, P. 365. No. 43.* CCXI.
unic. lar.

ONE-COLOURED BOLETUS.

T A B. CLXIII.

THIS is most generally halved, and adhering by one side; but sometimes the base is lengthened out into a kind of spurious footstalk, as is represented in one of the lower figures on the plate. The upper surface is covered with a close pile, or hairy nap, of a brownish buff-colour, and marked with zones or circles of the same colour, a little darker. The margin is acute, variously waved and lobed, and the plants sometimes lie over one another in imbricated order.

The internal substance is thin, white, tough, and leathery.

The lower surface is plain, or very little convex, while young cream-coloured, changing with age to a brownish ash colour.

The tubes are very short, adhering together by their sides, and inseparable from the flesh of the pileus. The pores are very small and of various figures; those towards the base, in the specimen before me, are larger, oblong, or angular, those near the margin are round and very minute.

This is the plant which I have formerly supposed to be the female or feeding specimen of my *Boletus auriformis*. But as the two are placed in different genera by Monsieur BULLIARD, I do not at present insist upon it, I drop this hint, that the supposition may be confirmed or confuted by the observations of others.

A a

- CCXII. BOLETUS *sessilis lobato multiformis, superos villosus aurentiacus*
hetroclitus. inferus luteo-aureus, tubis brevibus, poris multiformis.
Agaricus multiplex porosus, Ray, Syn. P. 23, No. 13.

IRREGULAR BOLETUS.

T A B. CLXIV.

THIS grows on the ground, and from an hard tough root, which is white within, and of a coriaceous substance; it shoots out several flat pieces, which lay on the surface of the earth, in an horizontal direction.

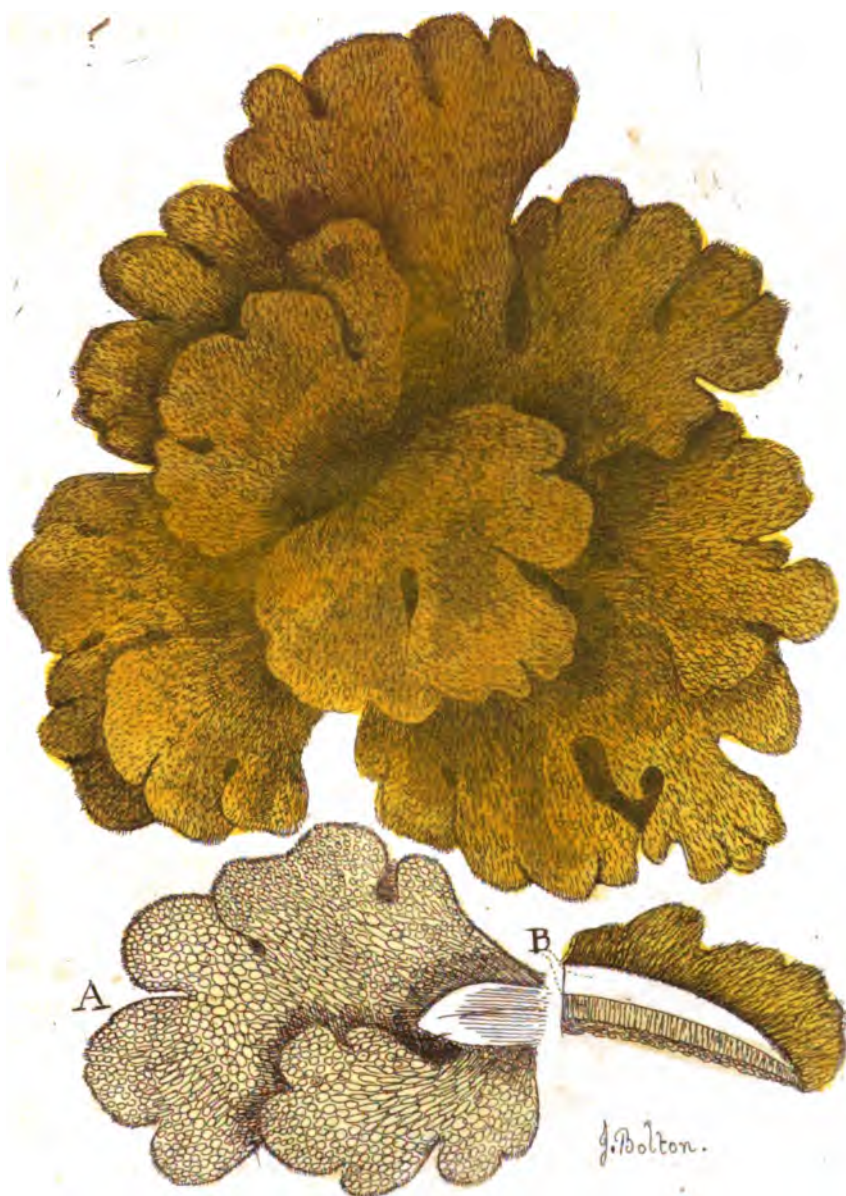
In the progress of growth it becomes lobed; the lobes imbricated, divided, and subdivided; their figure and disposition very wild, irregular, and uncertain.

The upper surface is thickly covered with a rough hairy pile or shag; while the plant is young of a golden colour, changing to an orange brown with age. The internal substance, at B. is thin, white, tough, and leathery.

The tubes are short, united together by their sides, and inseparable from the flesh; they are of a tough substance, and a golden yellow.

The pores, at A. are very different in shape and bigness; some large, others small; some round, others oval or oblong, as expressed in the figure; their colour varies with age, from a pale bright yellow to an orange brown.

I gathered specimens of this under oak trees, near *Fixby-Hall*, and specimens of the same have been sent me from the bishopric of *Durham*.





Drawn from Nature & Etched by J. Bolton Dingo.

BOLETUS *coriaceo-spongiosus, sessilis ferrugineus, tubis longifinis erectis, poris minutis rotundus.* CCXIII.
resupinatus.

S U P I N E B O L E T U S.

T A B. CLXV.

THIS curious Boletus most frequently creeps or spreads upon its back ; sometimes it is formed into lumps of a rude turban shape ; in either case it consists of a thin brown crust, which closely embraces the wood on which it grows, and serves as a base or ground-work to the tubes.

The tubes are long, erect, and constitute almost the whole substance of the plant. In the spreading or creeping specimens, the margin is unequally lobed and blunt ; the surface made uneven by swelling bunches ; the colour, like all the other parts, is a rusty brown. The pores round, but are too small for the inspection of the naked eye. The length of the tubes is different in the creeping and the turbanated specimens, being shorter in the first, longer in the last variety. They are figured of their natural size at *d. d. d.* magnified in two different degrees, at *b. c.*

This species is nearly related to the *Boletus cryptarum* of BULLIARD, *Texte*, P. 350. No. 31. and probably may be the same species, my specimens being greatly inferior to his, in point of elegance and perfection of growth.

I gathered specimens of this plant on dry decayed hawthorn boughs near *Burks-Hall*, in February, 1790.

- CCXIV. **BOLETUS** *crustaceus perennis mutabilis poris periturus.*—*Boletus proteus.* *cellulosus.* *Flo. Dan. Fas. 12. P. 9.*

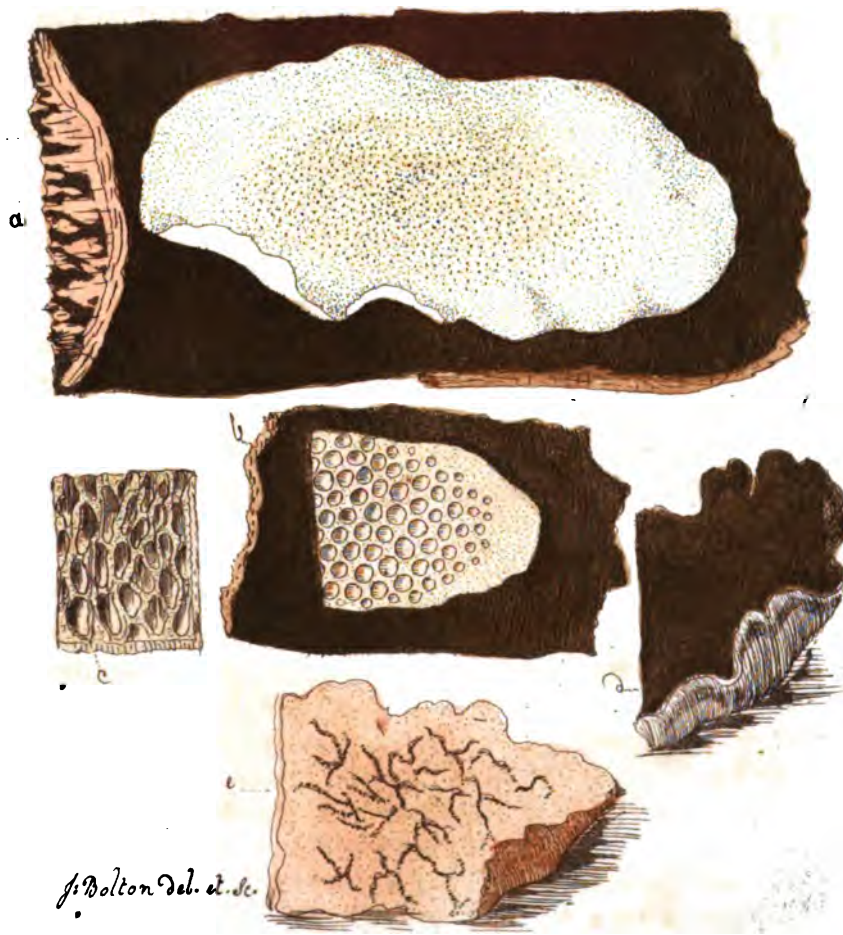
VARIABLE BOLETUS.

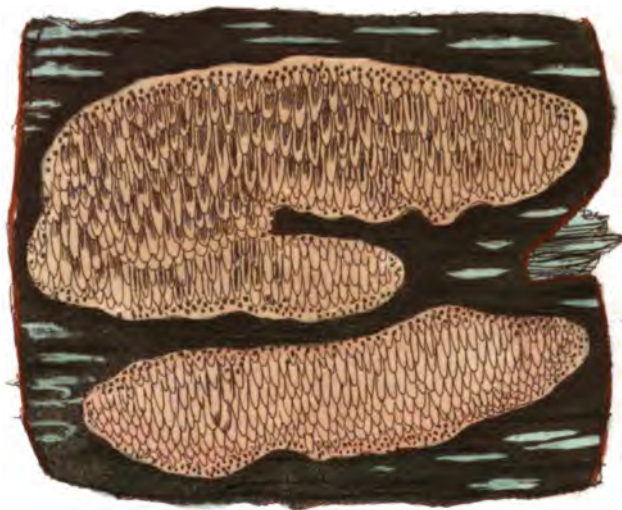
T A B. CLXVI.

THIS plant I have observed in its various state and stages, for a succession of years, but never had the good fortune to discover its fructification till February, 1790, when I found it on fallen boughs of the birds' cherry tree, which lay in the damp part of a wood, under putrid grafs and weeds.

The plant in its first stage, appears to be a white byffus, increasing in breadth, by shooting white, soft, downy filaments, from the margin, till it has attained its breadth, when it closes its margin, as at *a*; and has then the appearance of a piece of thin, white, soft lamb's skin, full of pores with short tubes, or rather of deep cells, which are seen magnified, while in a fresh state, at *b*. After lying by me, on the table, for a little while, it shrunk in substance, and the pores then appeared contracted, as in figure *c*. In this state it much resembles the *Merula crispata.* *Flo. Dan. Fas. 12. P. 9.*

After the disappearance of these pores, the plant continues to grow in firmness and thickness; the margin becomes lobed and crenated, the surface leathery and smooth, but sometimes tessellated with irregular sinufs or cracks, as at *e*; by this time, the margin begins to separate from the wood, and the colour of the surface changes from white to pale brown, when it greatly resembles the *Auricula corticalis* of BULLIARD; at last it changes to a dark fuscous brown, as at *d*; becomes dry, hard, and brittle; the margin is more eminently raised, and the underfide marked with black circles; it remains for a long time, and at last turns black and moulders.





BOLETUS *acaulis coriaceus semiovalis aurentiacus, rugoso reticulatus, marginali lata nivea fornicata.* *Dickson, Crypt. Fas. lacrymans,*
1. P. 18. CCXV.

TEAR-LIKE BOLETUS.

TAB. CLXVII. FIG. I.

THIS spreads in irregular patches, on the surface of decaying wood, in moist damp houses, or in woods.——In the specimens before me, the pores, for a small space all round the margin, are round and distinct; but towards the centre greatly lengthened out, not upright, but lying one upon another in an imbricated order, and have somewhat the appearance of falling tears. My specimens are young, and adhere to the wood by their whole breadth; when the plant is old the margin is detached at one or more sides. The colour is white at first, when old changes to a yellow brown, and at last to a dirty fuscous black.——I believe my *Boletus obliquus*, Tab. 74, is a variety of this species.

BOLETUS *crustaceus albus effusus difformis.* *Murrey, Syst. Veg. CCXVI.*
P. 977. *Dickson, Crypt. P. 18. medulla-pavia.*

BREAD-CRUMB BOLETUS.

TAB. CLXVII. FIG. II

THIS spreads on the surface of wood or bark, when in a dry state, and far advanced in decay; the substance is light and thin; the patches very various in figure and size. It so perfectly resembles a thin slice, cut from the middle of a loaf of household bread, that any other description is quite unnecessary. Grows in woods and hedges, about *Halifax*, not unfrequently.

- CCXVII. *BOLETUS coriaceo perennis substipitatus, pileo oblongo tenui sub-*
calceolus. laterito, tubis brevissimis, poris minutis rotundis. Boletus
calceolus. Var. Bulliard, texte, P. 338. No. 21.

SLIPPER BOLETUS.

T A B. CLXVIII.

MOST specimens of this *Boletus*, which have fallen under my notice, were furnished with a lateral footstalk, of an hard tough substance; in some, however, it is very short, and the plant may be said in these to want it.

The pileus, or rather the body of the plant, is of an oval or oblong shape, as represented on the plate.

The substance is dry, tough, leathery, and white within; the upper as well as under surface, while the plant is young, are also white or milk-coloured. When of age changes to a reddish brown, and, at last, to a fuscous black on the upper side.

The tubes adhere together, by their sides; a portion of them and of the pores, is a little magnified on the plate.

Since engraving the plate, I have found an old specimen, very rough on the surface, somewhat shaggy and tessellated, with short irregular furrows; is as firm and hard, almost, as wood.

I gathered it from the stump of an elder tree, near *Shibden-Hall*.





J.B. 1720.

BOLETUS *stipitatus*, pileo luteo centro aureo, carne alba
crispa firma, tubis luteis cortina araneosa alba. Boletus
annularius. Bulliard texte, P. 316. No. 1. Bolt. Fung.
T. 84. Fig. inferior. CCXVIII
annularius

ANNULATED BOLETUS.

T A B. CLXIX.

THE root is large, and covered with a gray mould; it emits long soft fibres.

The stem is upright, round, and solid; brown near the base, yellow in the upper part.

The curtain, in the specimen before me, is white, of a tender delicate substance, originating near the top of the stem, and extended to the rim of the pileus. In the specimen I now describe, the curtain is fallen to pieces, in the time of drawing the figure, and hangs in fragments, exactly as represented in the larger specimen.

The tubes are cylindrical and yellow; the pores round, and of the same colour, much smaller than the pores of the common yellow Boletus.

The pileus is convex, of a golden or orange colour, darkest in the centre; the rim even and acute; the surface, especially in moist weather, covered with a slippery glutin. The internal substance firm, and of a pale yellow colour.

This plant grew in plenty in the wood opposite *Burks-Hall*, in August, 1760.—I think it a distinct species from the large figure given on my eighty-fourth plate, for the *Boletus luteus*, LINN. though I thought them the same at that time.

CCXIX.
substriatus.

BOLETUS *stipitatus coriaceus, stipite gracili subcentrali, pileo subluteo-cinerefcence carne nivea tenuissima, poris minutis angularibus.*

SPINDLE-SHANK BOLETUS.

T A B. CLXX.

THE root is small, hard, of a leathery substance, and emits, into the ground, a few hard fibres.

The stem is upright, round or compressed, hard, and tough; dusky or yellowish on the outside, and white within; in some specimens it is inserted in the centre of the pileus, in others bearing towards the side.

The pileus is very thin of flesh, which is white, tough, and leathery; the surface of various hues, bordering on yellow, or yellow brown, but sometimes inclining a little to the olive, or to ash colour; it is smooth to the touch, convex, cushion-shaped or flat; the rim acute, and sometimes irregularly waved.

The tubes are moderately long, and adhere together by their sides. The pores minute, and to the naked eye appear round, but, when magnified a little, I found them to be angular, of various sides, very closely and beautifully arranged, they are of a pale yellowish colour.

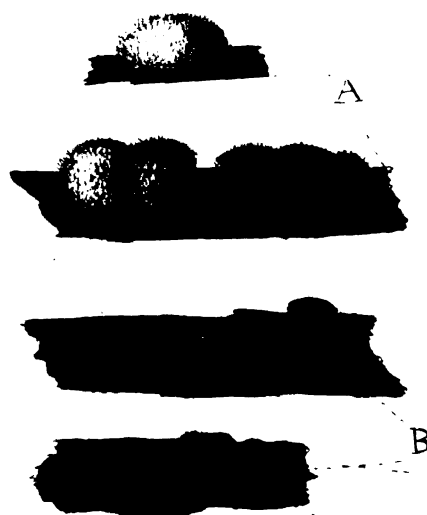
It is a rare species. I have gathered it in *North-Dean*, near *Halifax*. And specimens of the same have been sent me from *Darlington*, by my ingenuous friend Mr. EDWARD ROBSON. All the specimens I have received from *Darlington*, or the county of *Durham*, as mentioned in this appendix, have been sent me by that gentleman, collected by himself, or by Mr. THOMAS FLINTOFF, Surgeon, of *Knoyton*, in *Yorkshire*; two diligent, industrious, and well-informed botanists.

Mr. ROBSON has been long engaged in drawing up a *Flora Britanica*, according to the Linnæan system; and, in several other respects, on a more eligible plan than any that has appeared hitherto.

It was Mr. FLINTOFF who made microscopic observations on the *Clathrus coccineus*, as mentioned in the introduction to this work; though I inadvertently said, they were made by Mr. ROBSON; not paying a proper regard to the signature, till after the sheet was printed off.



Boletus edulis (Pers.) Fr. var. *edulis* (Pers.) Fr. By James William Stewart and Ralph Smith



Sp. Pl. Linn. ed. 12. p. 100. 1760.

CCXX.

minimum.

H Y D N U M.

HYDNUM *subrotundum coriaceo-lignosum aurentiacum; sessilis, ligno putrido superfice adnascens, aculeis brevibus arectis.*

THE LEAST HYDNUM.

T A B. CLXXI.

THIS curious little plant, adheres by its base to putrid wood; it is of a roundish or globular figure; sometimes solitary, but more frequently several are thrust near together; sometimes adhering together by their sides; it varies in size, from *a.* to *b.* as represented on the plate. It is of a dry, tough, leathery, or woody substance, adhering very firmly to the wood whereon it grows; it cuts smooth, and is white within.

The surface is thickly set with *aculei* or soft prickles, in an upright direction; these vary in colour, from a pale to a strong gold, and turn gray with age.

The specimens here figured, grew in a little wood near *Stump*, in *Northowram*, on a piece of old oaken wood; and I have seen the plant in other places in this neighbourhood.

B b

CCXXI.

mesenterica.

H E L V E L L A.

HELVELLA *acaulis, gelatinoso-coriace rugosa resupinata, supra spongioso-villosa cineria, infra lævis violacea. Dickson Crypt. Fas. 1. P. 20. Auricularia tramelloides. Bulliard Texte. P. 278. No. 1. Mich. Gen. 124. Agaricus mesentericus violaceo coloris. Ray Syn. 22.*

MESENTERIC HELVELLA.

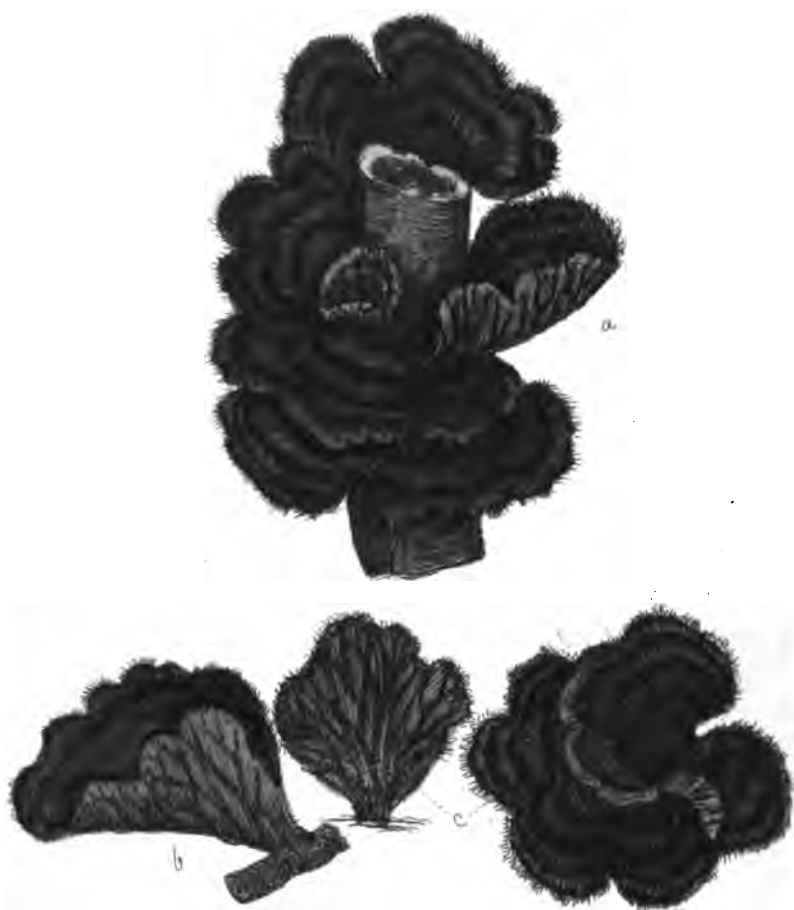
T A B. CLXXII.

THE specimens now before me, I have gathered from the smooth surface of an ash tree stump, from which the tree had been sawn off the preceding year.

The plant makes its first appearance in clusters, or single pieces, of a gelatinous half-transparent substance, and a dull dark violet colour, as at A. B. C. These, in time, open at the top or side, unfold, and turn inside out. In the progress of growth it increases, expands, and assumes various shapes; it becomes ear-shaped, cupped, halved, imbricated, lobed, or irregularly gashed in at the margin.

The inner surface, now become the outer, is thickly covered with an hairy shag, of an ochre colour, or gray, and marked with concentric circles of a darker colour. The outside still remains smooth, and of the same violet colour; it is a little wrinkled, but wants the cells, which distinguish BULLIARD's specimens.





Drawn & etched by J. Bolton at Stannary Anno Domini 1790.

HELVELLA *subseffilis*, coriaceo cespitosa pileo subinfundibuliformi CCXXII.
fusca radiatim floccosa striata, margine incisso ciliato. Dickson *caryophyllæ*
Crypt. Fas. 1. P. 20. Schæf. Fung. P. 115. No. 246.

C L O V E H E L V E L L A .

T A B. CLXXIII.

THIS Helvella has a hard root, variable in shape; it grows on various substances. I have gathered it on small sticks, on herbs, and grass in a putrid state, and also on the ground; it is of a very dark clove colour. The surface flocky or shaggy, and marked with concentric circles of a darker colour. The margin dented, curled, and waved; the dents and waves strongly and elegantly ciliated, with hairs of unequal length.

The underside is of a paler colour, having swelling veins, strongest near the centre, divided and subdivided towards the margin, and seem as if dusted over with a brown bloom or down.

The substance of the plant is soft, flexible, and tough; it soon turns black and perishes.

Grows in damp and moist situations, particularly under close plantations of larch and fir trees. These specimens I gathered in a little plantation near *Lee-Bridge*, February, 1790.

CCXXIII. *HELVELLA parasitica ferrugenia tenua flexuosa, margine lobata-
nicotiana, crispato nudo aureo, subtus venosus pallide-ferrugineus.*

TOBACCO HELVELLA.

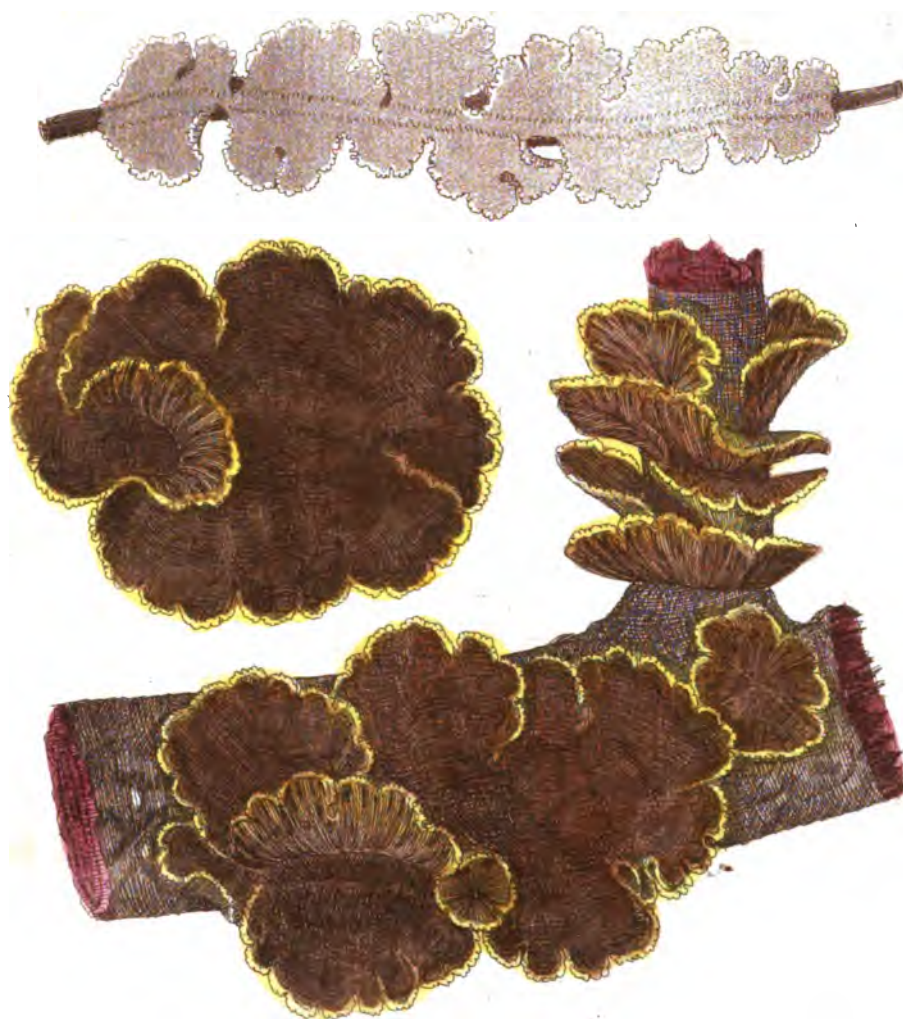
T A B. CLXXIV.

THIS *Helvella* sometimes adheres by its whole underfide, to dry wood and branches of trees, in a state of decay; sometimes it is detached round the sides, and the margin much elevated, so that it seems to adhere by a central base only.

The upper surface is soft, and smooth to the touch, but made uneven by rising bunches, particularly in the larger specimens.

The plant, both in colour and substance, very aptly resembles the best cured Spanish tobacco, by which character, and its golden margin, it is at once distinguished. The figure is in general round, the margin elegantly lobed; the lobes crenated or dented, and edged with a fine golden-coloured lace.

The underfide is veined and wrinkled, naked and of a colour somewhat paler than the upper. The plant sometimes spreads to a considerable distance; I have seen it run upon the decayed shoots of common woodbine or honeysuckle, to the length of two or three feet, in the manner expressed in the upper figure on the plate. It is in perfection in February, and soon perishes. It resembles the *Auricularia ferruginea*, of BULLIARD; but I think it a distinct species.



J. Bolton del et sculp. May 26. Anno Domini 1790.



— J. B. 1790.

HELVELLA *major, cerea, tenuis fragilis glabris sessilis cratera* CCXXV.
e vesiculosa marsupiformi. Peziza vesiculosa. Bulliard *vesiculosa.*
Texte, P. 270, No. 38. Elvella scutelata. Schæf. Fung.
P. 101. No. 212. Elvella pyxidata. Ib. P. 111. No. 236.

PURSED HELVELLA.

T A B. CLXXV.

THE root is central, black or dark brown, hard, misshapen, and furnished with soft downy fibres.

The plant while young, is commonly of a globular figure, but of very variable shapes at full growth; as it advances, the margin becomes irregularly waved and undulated, but still converging at the rim. It grows to a large size; I have seen specimens much larger than the figure on the plate 175.

In its first stage it is beset on the outside with a kind of grains, or little pustules, which are not seen without a glass; in time these disappear, and the outside becomes dusty with a white powder, probably the seeds of the plant.

The inside of the cup is smooth and vellumy, of a dark kind of ochre colour; the substance of the plant very moist and brittle.

In some states this plant has a resemblance of the *Helvella cochleata*; but by its size, and some other of its properties, I have reason to suppose it a distinct species.

CCXXV. *HELVELLA minima stipitata cartilegenia, pileo supra ochreolucā, fibuliformia. stipite brevi nigro-fusci.*

BUTTON-SHAPED HELVELLA.

T A B. CLXXVI.

THIS little plant grows on sticks or roots, near some rill or stream of water.

It consists of a little hard pileus, smooth, slippery, and of a yellow ochre colour on the upper side; it is supported by a round stem, a line in length, of a solid and firm consistence, and, together with the underside of the pileus, is of a dusky black.

The lower figures on the plate are the natural size of the plant, the three upper are magnified.

The specimens, here figured and described, grew by the stream of the spring at *Bell-Bank*, near *Bingley*. It grew upon small branches of elm root, which had been washed bare by the stream, and were still within the reach of its sprinklings.



• James Bolton Del. et sculp. 1790



HELVELLA *acaulis difformis subfusca, margine varia lobato* CCXXVI.
crispato subtus venosa, venus ramosis anostomosentibus, Dickson membranacea.
Crypt. Fas. 1. P. 21. Helvella dimidiata. Bulliard Texte,
P. 291. No. 3. Ib. Agaricus muscigenus.

T H I N H E L V E L L A.

T A B. CLXXVII.

THIS little delicate plant shoots down, into the mossy soil where it grows, a slender longish root, furnished with a few hair-like fibres; from the head of this root the plant spreads horizontally, on the surface of the moss, and has much the appearance of a tramella; it varies much in shape, being halved or divided into several broad lobes.

The upper surface is smooth, and of a dark redish brown; it is thin and flexible, but rather tough.

The underside is marked with divided and subdivided veins, which while the plant is young, give it much the appearance of a small dimidiated parasitic Agaric. I have seldom found it on bryums upon old walls; and I have received the same from the county of *Durham*, where, I am informed, it is common on thatched houses.

CCXXVII.

lycopodium.

LYCOPERDON.

LYCOPERDON *minimum subturbinatum, sublanigunosum, carne alba, seminibus fuscescentibus, pericarpo floccido. Bulliard Texte, P. 147, No. 3. Lycoperdon equinum. Willdinow Flor. Bern. P. 412. T. 7. Fig. 20. Lichen byssoides. Var. B. Hudson Ang. P. 521.*

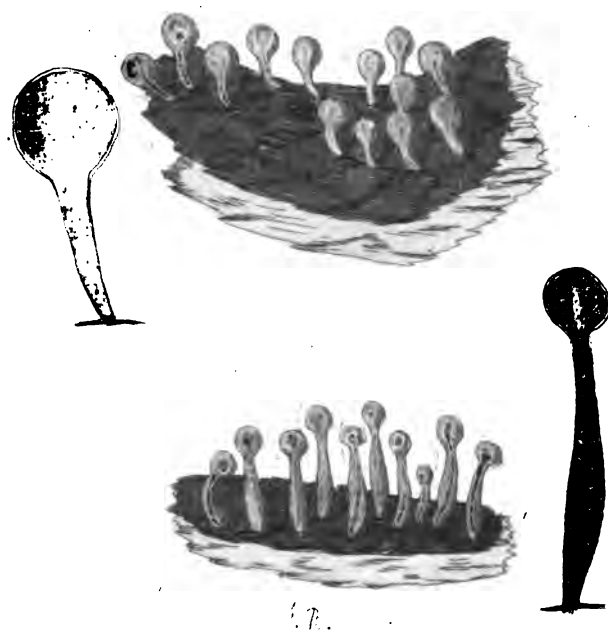
COTTONY LYCOPERDON.

T A B. CLXXVIII.

THIS Lycoperdon is very various in shape; it is most frequently turbinated, and supported on a slender stem, as is shewn in the upper figure on the plate. Sometimes it is perfectly sessile, especially while young; in another state, the pileus is globular, and supported on a lengthened stem, which is bellied, something like a narrow pitcher, as the lower figure represents. In both states it is of a fair white while young, but in the progress of growth changes to a dusky brown; the surface is soft and downy.

The small figures are the natural size; the two sections are magnified.

The two may possibly be distinct species; but as I have found them growing at the same time and place, and never on any other substance than the putrid hoofs of beasts, I have comprehended them both under one.





LYCOPERDON *volvaceum prima ætate subterraneum.* Bulliard CCXXVIII.
Texte, P. 160. No. 10. Geaster major umbilico fimbriato. *stellatum.*
Mich. Gen. P. 220. Lycoperdon stellatum. Schæf. Fung.
P. 126. No. 270. Ray Syn. P. 27. No. 11.

STARRED LYCOPERDON.

T A B. CLXXIX.

THE first appearance of this Lycoperdon is a round ball, rising out of the earth; the volva or outer covering of which divides and opens in several petal like segments, which give it a flower-like appearance; within is a globular Lycoperdon, sessile at the opening of the volva, but afterwards rises, and is supported on a short stem.

The segments of the volva are of a thick fleshy substance, and a dusky brown, except the margins, which are thin, and of a paler colour; they are not equal in size or shape, some being broader, some narrower, some subdivided, and their number is uncertain.

The central globe, or head, is at first surrounded by a thin netted covering, of a bluish brown colour, which falls off and vanishes; after which, the capitulum or central globe breaks at the summit, and discharges a dust like the other Lycoperdons; after which, it becomes wrinkled, flaccid, turns to a dirty brown, and soon perishes.

Grows on the borders of *Swains-Moor*, near *Halifax*, but is rare there.

C c

CCXXIX.

concentrica.

S P H Æ R I A.

SPHÆRIA *sessile reniformia, extus punctatus subfulvus subfuliginosus, intus fragilis, circulus concentricis notata, semina vesicula urceolata.*—*Agaricum durum crassum affulatum, &c. Mich. Gen. P. 121. Ordo. 4.*

CONCENTRIC SPHÆRIA.

ALL the specimens of this plant, which I have seen, were perfectly sessile, adhering to putrid wood, by a broad flat base; it varies in size, from the bigness of a chefnut to that a bullock's kidney; the shape is also various, convex, cushioned, kidney-shaped, or swelled into bunches with intervening hollows.

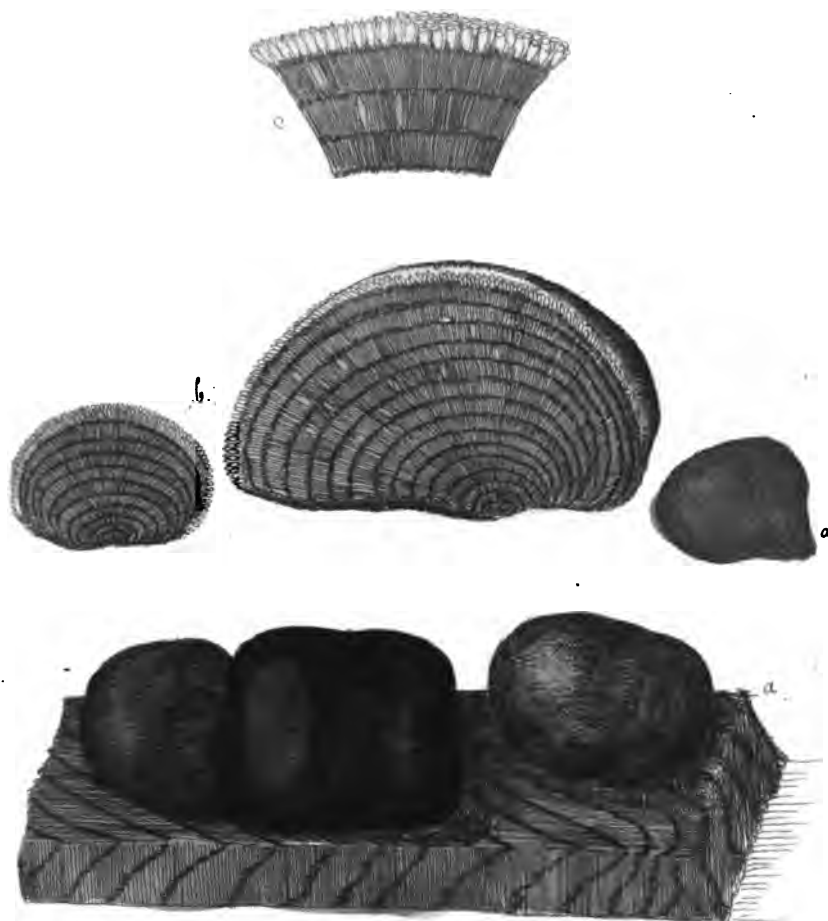
The surface is hard, firm, smooth, and slippery to the touch, but full of minute punctures; the bark or external covering is, in itself, of a dark chefnut colour; but at one time, as at *a.* it is covered with a dark red dust or powder, which is the flower of the plant. At another, this red powder is lost, and is succeeded by a powder of a velvety black colour, which is the seed.

The substance of the plant, in the inside, is compact but brittle; it consists of various strata, of a kind of changeable gray colour, distinguished by concentric circles of the same colour, a little darker.

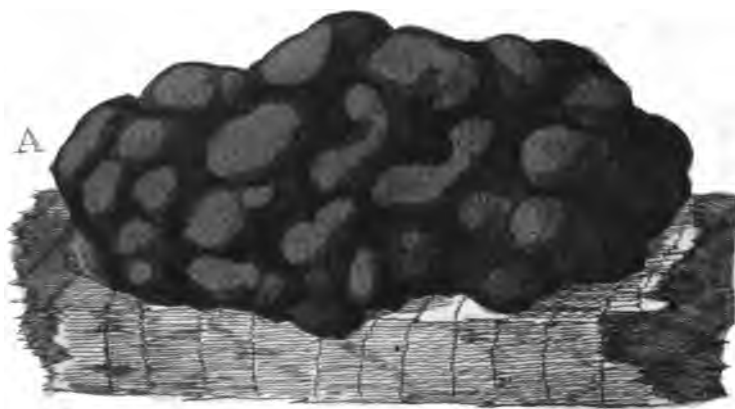
The plant is perennial; and I suspect the circles to be the growth of so many years; the growth of each year adding a coat of new seed vessels, on the surface of the old.

The seed-vessels are not globular, but of an urn or pitcher shape; while the red powder is on the surface of the plant, they are nearly shut at the mouths, and full of a white gelly; when the black takes place, they are open and filled with black seeds, a portion of them, in both states, (the bark being removed) is seen a little magnified at *c.*

This plant I gathered on old thorns in the park of *Fixby-Hall*; it has also been gathered near *Elland*, and sent me, in great perfection, from the county of *Durham*.



J. Dollon Del. et Sculp^t L. a. Maio Anno Domini 1792



D



E

B



C

J. Bolton 1790.

SPHÆRIA *magna, crassa, atra, supern pustulis notata.* Dickson
Crypt. Fas. 1. P. 23. Weber Goett. 286. Hypoxylon ustu-
latum. Bulliard Texte, P. 176. No, 11. Hall. Hift. No.
2192. Mich. Gen. P. 104. Sphæria deusta. Hoff. Crypt.
Fas. 1. P. 3. CCXXX:
maxima.

GREATEST SPHÆRIA.

T A B. CLXXXI.

THIS grows on the stumps of trees and old wood, when far advanced in a state of decay; it is more flat or convex according to its age; is perennial, abiding from year to year. The surface is of a dead black, and appears almost like the leather of an old boot or shoe. The substance is very brittle, and the surface, especially in old plants, made very uneven by means of rising bunches, or tumour-like swellings, and is closely beset at one time of the year, with small rising pustules, at another by sinking punctures.

The seed-vessels are spherical, and lodged in a stratum close under the bark or outer covering of the plant; to the inside of which, when the plant is dry, they adhere by their mouths, for the rest of the internal substance perishes, and it becomes hollow.

At B. a piece is obliquely cut off, to shew the arrangement of the seed-vessels; and another is cut downright, at C. for the same purpose. At D. a single seed-vessel is a little magnified; and at E. another cut open.

The specimens here described, grew on the old stump of an ash tree near *Elland*, amongst others much larger.

CCXXXI. SPHÆRIA *coriaceo ramofo fulvo, in ramos subdivisus expansus,*
reticidia.

BRANCHED CIRCULAR SPHÆRIA.

T A B. CLXXXII.

THIS curious little plant I gathered on the branches of fallow and halle trees, when advanced in a state of decay, so far as to be easily compressible between the fingers. From a centre it shoots out, into a circular figure, numerous simple, bifid, or trifid branches, of a tough, hard, and leathery substance, of a fulvous brown or strong orange colour, on the outside, and having a gentle asperity to the touch. The internal substance is white and firm. When the plants become old, they are covered with a greenish powder, particularly near the centre.

The seed-vessels are small, not visible to the naked eye; they are lodged close under the bark, and make prominent tubercles on its surface, visible when a little magnified.

The entire figures are the natural size of the plant, and shew its manner of growing on larger or smaller pieces of wood. The separate figure, on the right hand, shews one of the branches taken off and a little magnified; from the surface of which, a small portion is cut off, and further magnified in the lower figure. The plant adheres firmly to the wood, by the whole breadth of its under side. On opening the seed-vessels of young plants, I found them full of a white gelly; those of the old contained brown globular seeds, or were empty.

I found this plant on dead branches, close by the brook below *Ramsden-Wood*, in February, 1790.

F I N I S.



Drawn from Nature & Etched by J. Bolton. D 1790

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D d

Carnosus

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